The PHOTOFACT Servicer

SET 406 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JULY 15, 1958

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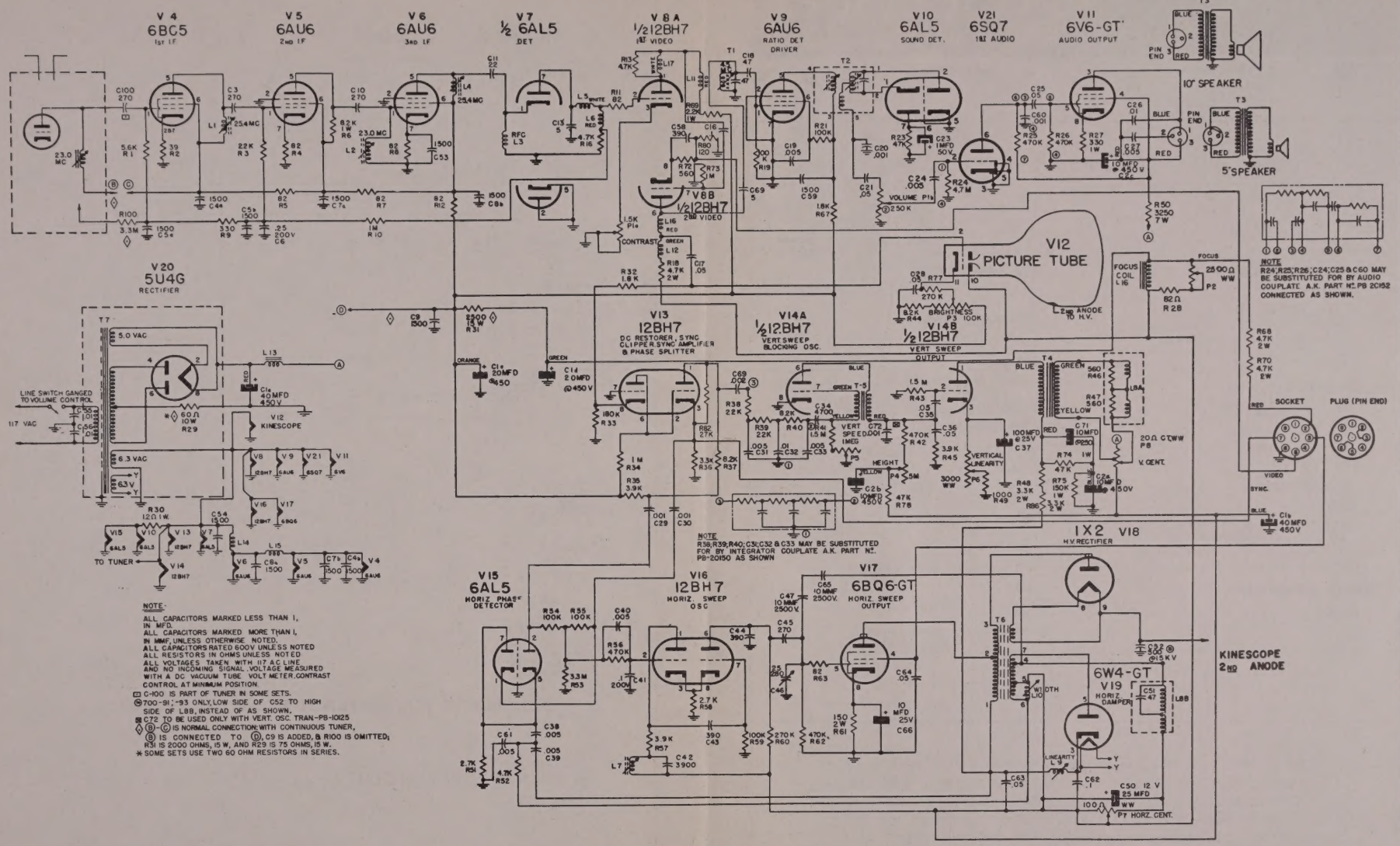
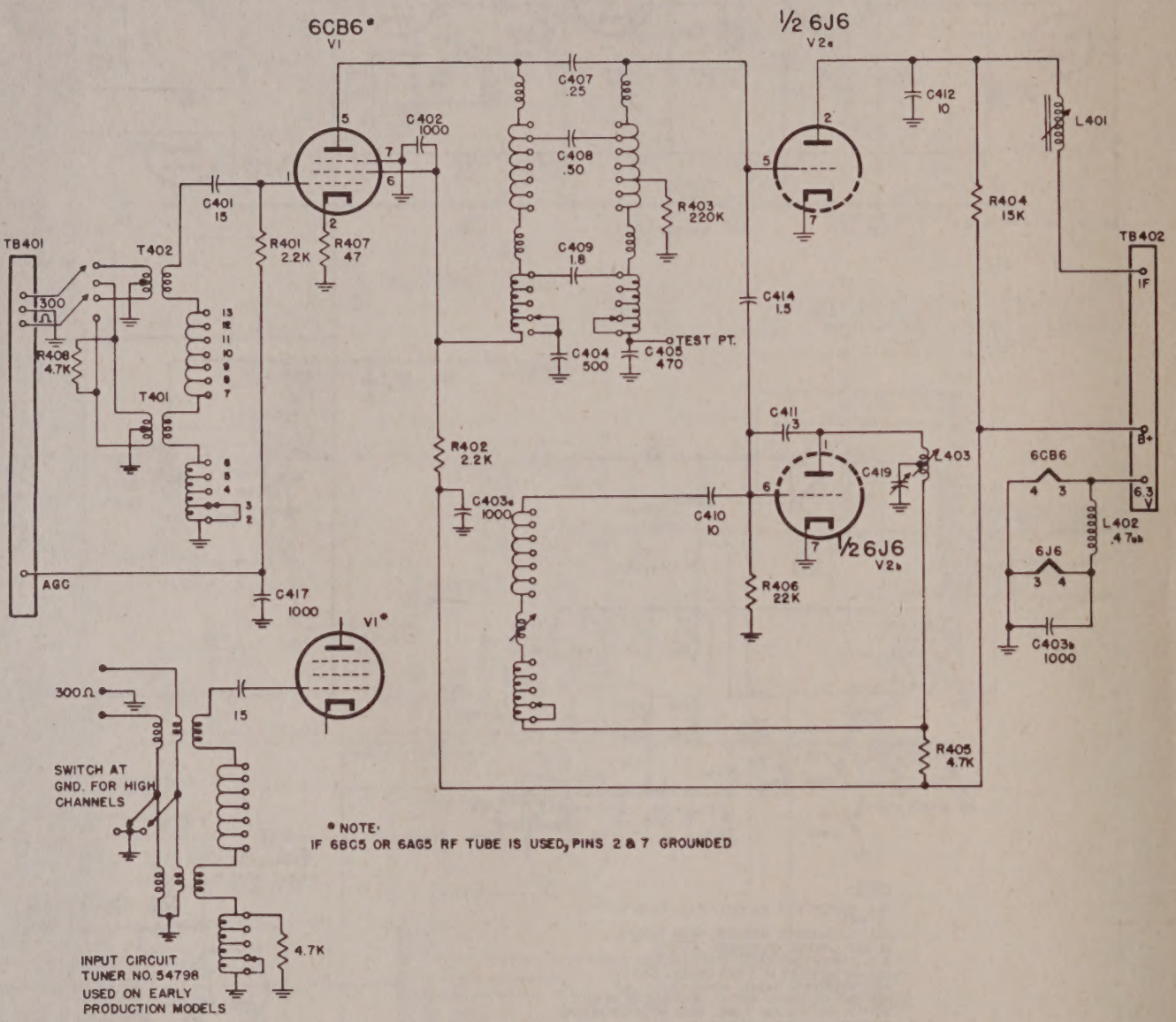
The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

FIRESTONE MODELS 13-G-58, 13-G-59, 13-G-79, (CODE No. 105-1-70096)


V4 6BC5 1st I.F.
V5 6AU6 2nd I.F.
V6 6AU6 3rd I.F.
V7 ½ 6AL5 DET.
V8A ½12BH7 1st VIDEO
V9 6AU6 RATIO DET DRIVER
V10 6AL5 SOUND DET.
V21 6SQ7 1st AUDIO
V11 6V6-GT AUDIO OUTPUT
V8B ½12BH7 2nd VIDEO
V12 PICTURE TUBE
V13 12BH7 DC RESTORER, SYNC CLIPPER, SYNC AMPLIFIER & PHASE SPLITTER
V14A ½12BH7 VERT. SWEEP BLOCKING OSC.
V14B ½12BH7 VERT. SWEEP OUTPUT
V20 5U4G RECTIFIER
V15 6AL5 HORIZ. PHASE DETECTOR
V16 12BH7 HORIZ. SWEEP OSC.
V17 6BQ6-GT HORIZ. SWEEP OUTPUT
1X2 V18 H.V. RECTIFIER
6W4-GT V19 HORIZ. DAMPER
10" SPEAKER
5" SPEAKER
KINESCOPE 2ND ANODE
TO TUNER
LINE SWITCH GANGED TO VOLUME CONTROL
117 VAC
SOCKET
PLUG (PIN END)
NOTE
ALL CAPACITORS MARKED LESS THAN 1, IN MFD.
ALL CAPACITORS MARKED MORE THAN 1, IN MMF. UNLESS OTHERWISE NOTED.
ALL CAPACITORS RATED 600V UNLESS NOTED
ALL RESISTORS IN OHMS UNLESS NOTED
ALL VOLTAGES TAKEN WITH 117 AC LINE AND NO INCOMING SIGNAL. VOLTAGE MEASURED WITH A DC VACUUM TUBE VOLT METER. CONTRAST CONTROL AT MINIMUM POSITION.
C-100 IS PART OF TUNER IN SOME SETS.
700-91, -93 ONLY, LOW SIDE OF C52 TO HIGH SIDE OF L8B, INSTEAD OF AS SHOWN.
C72 TO BE USED ONLY WITH VERT. OSC. TRAN.-PB-10125
(B)-(C) IS NORMAL CONNECTION WITH CONTINUOUS TUNER, (B) IS CONNECTED TO (D), C9 IS ADDED, & R100 IS OMITTED; R31 IS 2000 OHMS, 15 W, AND R29 IS 75 OHMS, 15 W.
* SOME SETS USE TWO 60 OHM RESISTORS IN SERIES.
NOTE
R24, R25, R26, C24, C25 & C60 MAY BE SUBSTITUTED FOR BY AUDIO COUPLATE A.K. PART NO. PB 20152 CONNECTED AS SHOWN.
NOTE
R38, R39, R40, C31, C32 & C33 MAY BE SUBSTITUTED FOR BY INTEGRATOR COUPLATE A.K. PART NO. PB-20150 AS SHOWN

SCHEMATIC DIAGRAM COURTESY FIRESTONE TIRE & RUBBER CO.

FIRESTONE MODELS 13-G-58, 13-G-59, 13-G-79, (CODE No. 105-1-70096)



SCHEMATIC FOR RF TUNER NO. 54946, Model TT3-X

SCHEMATIC DIAGRAM COURTESY FIRESTONE TIRE & RUBBER CO.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove the tuner antenna leads from the antenna terminal board.
2. Remove rear cover by releasing the spring clips.
3. Remove 4 plugs from the amplifier chassis.
4. Remove 4 wood screws holding the TV-Phono switch bracket.
5. Remove 1 wood screw from the top chassis brace.
6. Remove 1 chassis bolt from the bottom.
7. Remove 4 metal screws from the 2 side chassis brackets.
8. Remove chassis from the front.
9. Remove 4 bolts holding the amplifier chassis.
10. Remove the amplifier chassis.

MODEL LHR21F32(CH.17J1)

TRADE NAME	Admiral	MODELS	CHASSIS
		CHA21F52, CHA21F53, CHA21F54, LHA21F32, LHA21F33, LHA21F34	17AB1
		HFA21F22, HFA21F23	17AK1
		CH21F52, CH21F53, CH21F54, LH21F32, LH21F33, LH21F34	17B1
		CH21F52B, CH21F53B, CH21F54B, LH21F32B, LH21F33B, LH21F34B	17B1B
		LHR21F32, LHR21F33, LHR21F34	17J1
		HF21F22, HF21F23	17K1
		Amplifier	4R2
		Remote Control	8G1

MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	Television Receiver With Amplifier And Remote Control
TUBES	TV - Sixteen, Amplifier - Four, Remote Control - Eight
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 290 Watts, 2.65 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

NOTE: MODELS USING CH. 17AB1, 17AK1 USE ADMIRAL RECORD CHANGER #RC637-2A. FOR SERVICE INFORMATION ON THIS UNIT REFER TO PHOTOFACT SET 398 — FOLDER 7.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector, Fine Tuning knobs and escutcheon. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the name plate at the bottom of the safety glass. Remove the metal screws holding the glass retainer clamps. Tilt glass out at the bottom and lower to remove.

SPECIAL ADJUSTMENTS

A. Super Range Finder
The Super Range Finder (R7) is adjusted to improve reception in fringe areas and areas where interference is present. The Super Range Finder control should be turned fully counterclockwise and left there if satisfactory pictures can be obtained in this position.
Where the signal strength is weak, turn the control clockwise until the picture is satisfactory. White flashes and snow can sometimes be minimized by carefully adjusting the Super Range Finder. Keep this control set as far counterclockwise as possible consistent with satisfactory pictures to prevent overloading or excessive contrast.

B. Focus
The focus may be varied in steps by the position of a plug in the Focus Adjustment board. Readjust the Ion Trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency coil is used as the Horizontal Hold control. Adjust the Horizontal Hold until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSES

One fuse is used for low voltage supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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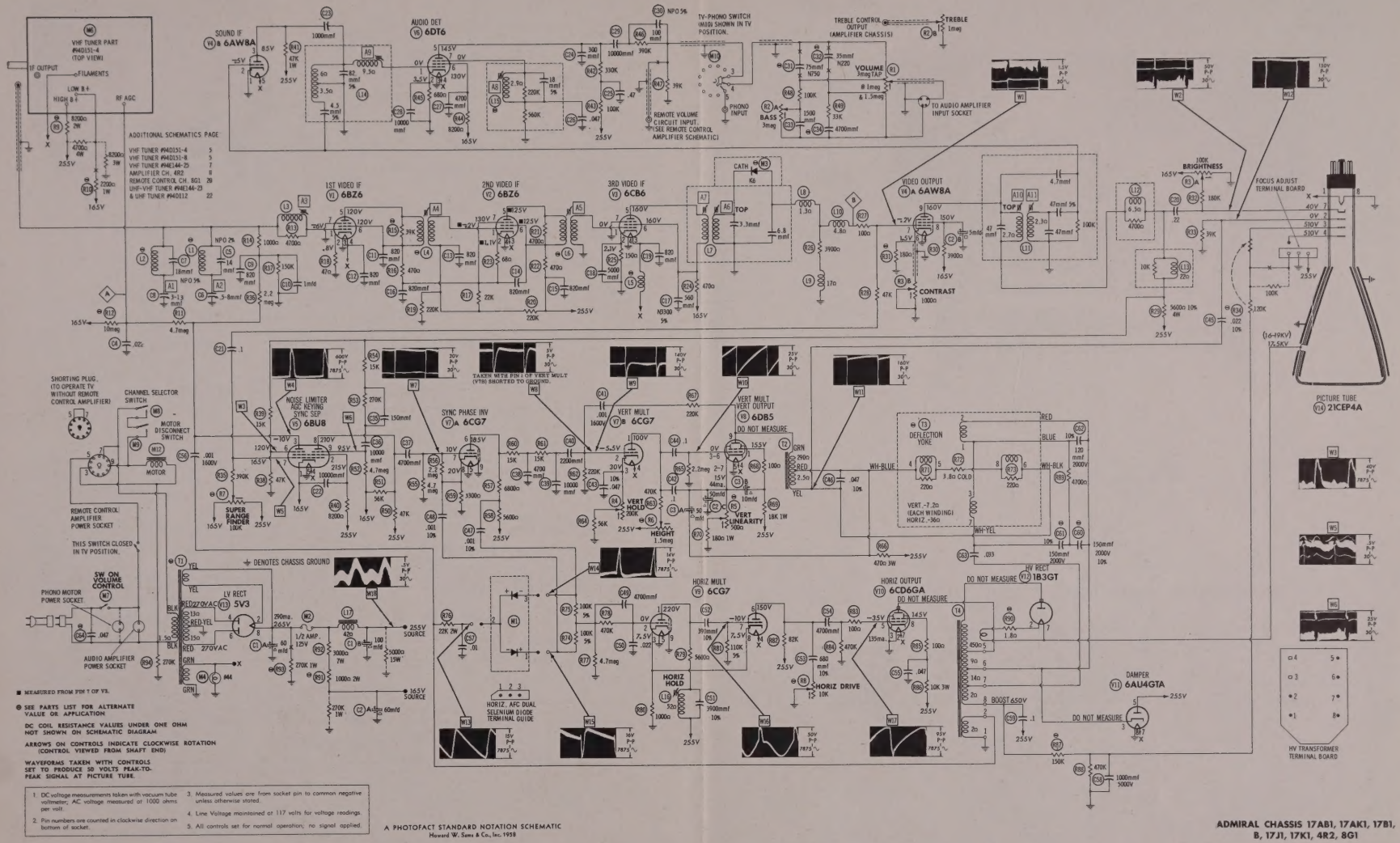
SET 406 FOLDER 1

ADMIRAL CHASSIS 17AB1, 17AK1, 17B1, B, 17J1, 17K1, 4R2, 8G1

ADMIRAL CHASSIS 17AB1, 17AK1, 17B1, B, 17J1, 17K1, 4R2, 8G1

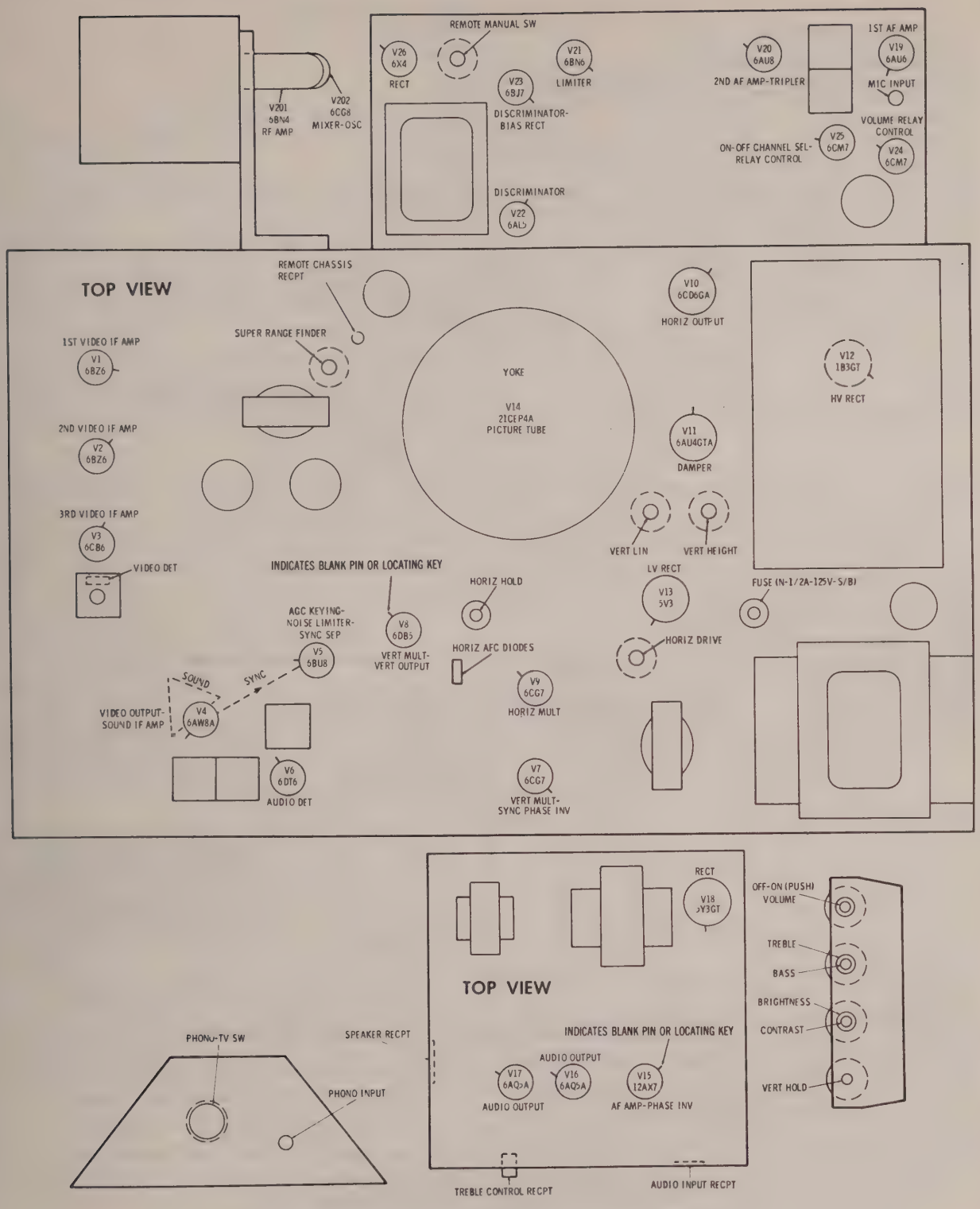
SET 406 FOLDER 1


VHF TUNER PART #94D151-4 (TOP VIEW)
IF OUTPUT
FILAMENTS
LOW B+
HIGH B+
RF AGC
ADDITIONAL SCHEMATICS PAGE
VHF TUNER #94D151-4 5
VHF TUNER #94D151-8 5
VHF TUNER #94E144-25 7
AMPLIFIER CH. 4R2 11
REMOTE CONTROL CH. 8G1 26
UHF-VHF TUNER #94E146-23 & UHF TUNER #94D112 22
SOUND IF V4 B 6AW8A
AUDIO DET V6 6DT6
TV-PHONO SWITCH (M10) SHOWN IN TV POSITION.
REMOTE VOLUME CIRCUIT INPUT. (SEE REMOTE CONTROL AMPLIFIER SCHEMATIC)
PHONO INPUT
TREBLE CONTROL OUTPUT (AMPLIFIER CHASSIS)
VOLUME 3meg TAP
TO AUDIO AMPLIFIER INPUT SOCKET
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6CB6
VIDEO OUTPUT V4 A 6AW8A
CONTRAST
BRIGHTNESS
FOCUS ADJUST
TERMINAL BOARD
PICTURE TUBE V14 21CEP4A
SHORTING PLUG. (TO OPERATE TV WITHOUT REMOTE CONTROL AMPLIFIER)
CHANNEL SELECTOR SWITCH
MOTOR DISCONNECT SWITCH
MOTOR
NOISE LIMITER AGC KEYING SYNC SEP V5 6BU8
SYNC PHASE INV V7 A 6CG7
VERT MULT V7 B 6CG7
VERT MULT VERT OUTPUT V8 6DB5
DO NOT MEASURE
TAKEN WITH PIN 1 OF VERT MULT (V7B) SHORTED TO GROUND.
DEFLECTION YOKE
VERT. -7.2Ω (EACH WINDING) HORIZ. .36Ω
VERT LINEARITY
HEIGHT
VERT HOLD
SUPER RANGE FINDER
REMOTE CONTROL AMPLIFIER POWER SOCKET
THIS SWITCH CLOSED IN TV POSITION.
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
PHONO MOTOR POWER SOCKET
AUDIO AMPLIFIER POWER SOCKET
LV RECT 5V3
HORIZ MULT V9 6CG7
HORIZ OUTPUT V10 6CD6GA
DO NOT MEASURE
HV RECT V12 1B3GT
DAMPER V11 6AU4GTA
HORIZ DRIVE
HORIZ HOLD
HORIZ. AFC DUAL SELENIUM DIODE TERMINAL GUIDE
HV TRANSFORMER TERMINAL BOARD
BOOST 650V
165V SOURCE
255V SOURCE
■ MEASURED FROM PIN 7 OF V3.
◎ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ADMIRAL CHASSIS 17AB1, 17AK1, 17B1, B, 17J1, 17K1, 4R2, 8G1

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound V13, Fuse (M2)

SWEEP FAILURE
No raster, has sound Rectifier (M1), V9, V10, V11, V12, V14
No vertical deflection V7, V8
Poor vert. linearity or foldover V7, V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V7, V8
Horiz. off freq. V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (M3), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V15, V16, V17, V18
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V7
No horiz. sync V5, V7, M1
No vert. or horiz. sync V5, V7

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3.5 volt bias supply thru a 10K resistor to point Ⓐ.
Connect positive lead to chassis.
Turn super range finder control fully clockwise.
Connect a 270mmf capacitor across the VTVM test leads. Use the lowest scale on the VTVM. While peaking the adjustments, keep reducing the signal generator to keep the VTVM reading no higher than -1 volt DC.
Connect a short across the antenna terminals.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	41.25MC (Unmod)	12	DC probe thru 47K to point Ⓑ. Common to chassis. (Across video det. load).	A1	Adjust for MINIMUM deflection.
2.	"	"	47.25MC	"	"	A2	"
3.	"	"	42.3MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	45.3MC	"	"	Mixer Plate Coil & A4	"
5.	"	"	41.5MC	"	"	A5	"
6.	"	"	42.0MC	"	"	A6	"
7.	"	"	43.5MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Leave the super range finder control fully clockwise.
Connect a 270mmf capacitor across the input leads of the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	41.25MC 42.0MC 43.5MC 45.0MC 45.75MC 47.25MC	12	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across video det. load).		Check for response similar to Fig. 1 with markers as indicated. If curve does not resemble Fig. 1, repeat "Video IF Alignment".
9.	"	"	"	45.0MC	"	"		Connect a short, heavy, solid jumper across L3. Response curve should be similar to Fig. 2. If the 45.0MC marker does not fall on the peak adjust the mixer plate coil slug until it does. Remove the short and repeat step 3 of the "Video IF Alignment". Recheck step 8 above.

SOUND IF ALIGNMENT

Tune in the strongest TV signal available in the area. Adjust the set for normal operation. Turn the super range finder control fully counter clockwise.
Using a hexagonal non-metallic alignment tool, turn A8 slowly clockwise until a buzz is heard in the sound. Then turn counter clockwise for maximum undistorted sound. (There may be two points approximately ⅛ turn apart at which the sound is loud. Use the one with the slug the farthest clockwise.
Reduce the signal at the antenna terminals (by use of an adjustable attenuator or disconnecting the antenna) until a strong hiss similar to super regeneration is heard in the sound.
Carefully adjust A9 for maximum undistorted sound with MINIMUM hiss. If the hiss disappears during alignment, further reduce the signal until the hiss returns, then readjust A9.
Carefully adjust A10 for MINIMUM 4.5MC beat pattern in the picture. 4.5MC beat interference appears as a very fine cross hatch pattern on the screen.
Carefully adjust A11 for maximum undistorted sound with MINIMUM hiss. If the hiss disappears during alignment, further reduce the signal strength. Readjust A11.
Repeat entire procedure, if necessary. DO NOT RETOUCH A9 WITHOUT REPEATING ALL OF SOUND ALIGNMENT.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 21.

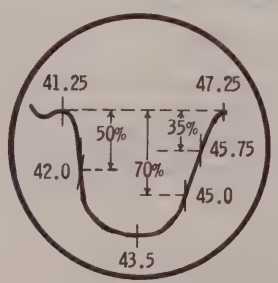


FIG. 1

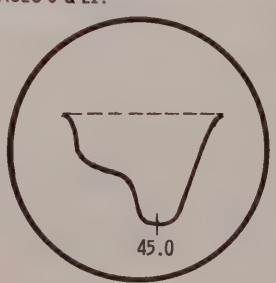
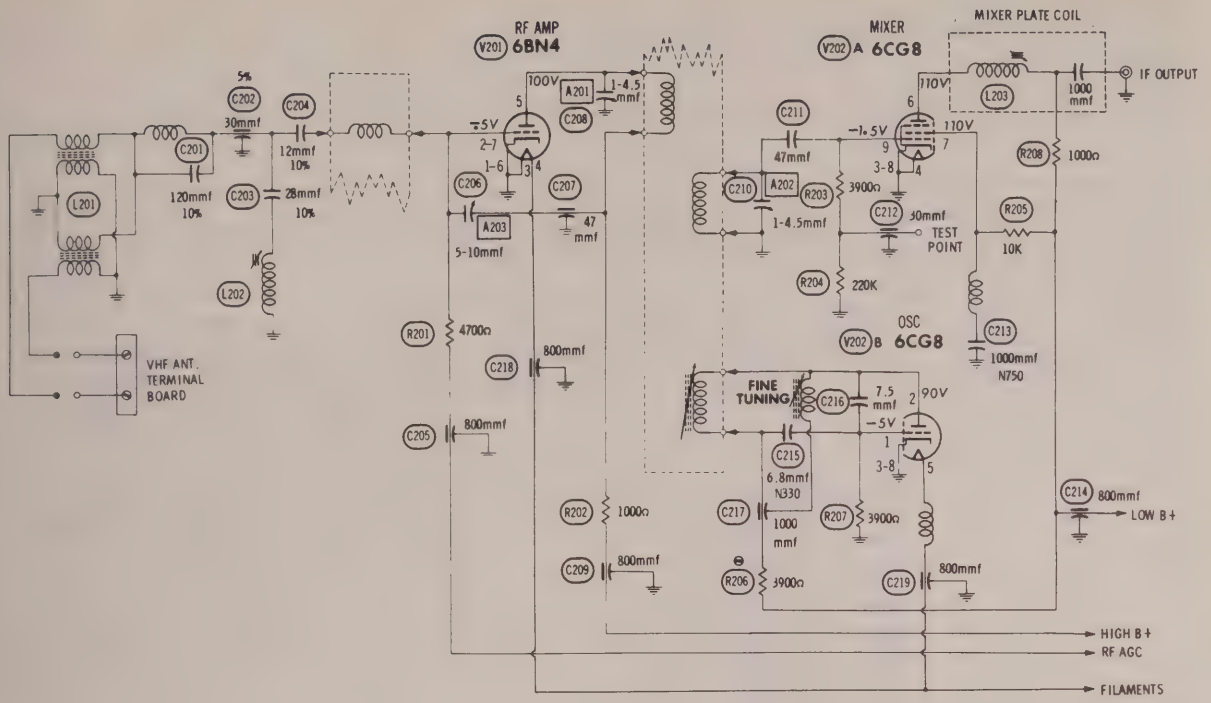
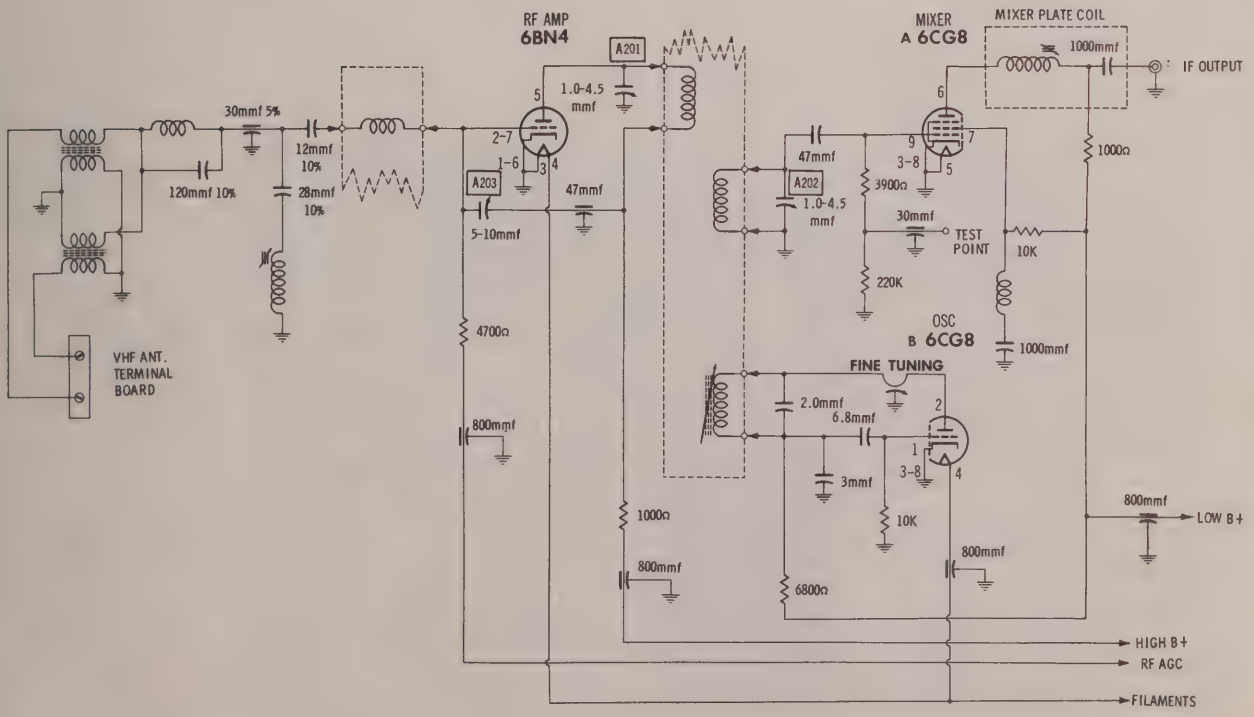


FIG. 2



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #94D151-8



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #94D151-4

TUNER ALIGNMENT INSTRUCTIONS #94D151-4, -8

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.

VHF OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point ⊕. Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
"	"	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustments of A201 and A202, with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
		207MC	205.25MC 209.75MC	12			
		201MC	199.25MC 203.75MC	11			
		195MC	193.25MC 197.75MC	10			
		189MC	187.25MC 191.75MC	9			
		183MC	181.25MC 185.75MC	8			
		177MC	175.25MC 179.75MC	7			
		85MC	83.25MC 87.75MC	6			
		79MC	77.25MC 81.75MC	5			
		69MC	67.25MC 71.75MC	4			
		63MC	61.25MC 65.75MC	3			
		57MC	55.25MC 59.75MC	2			

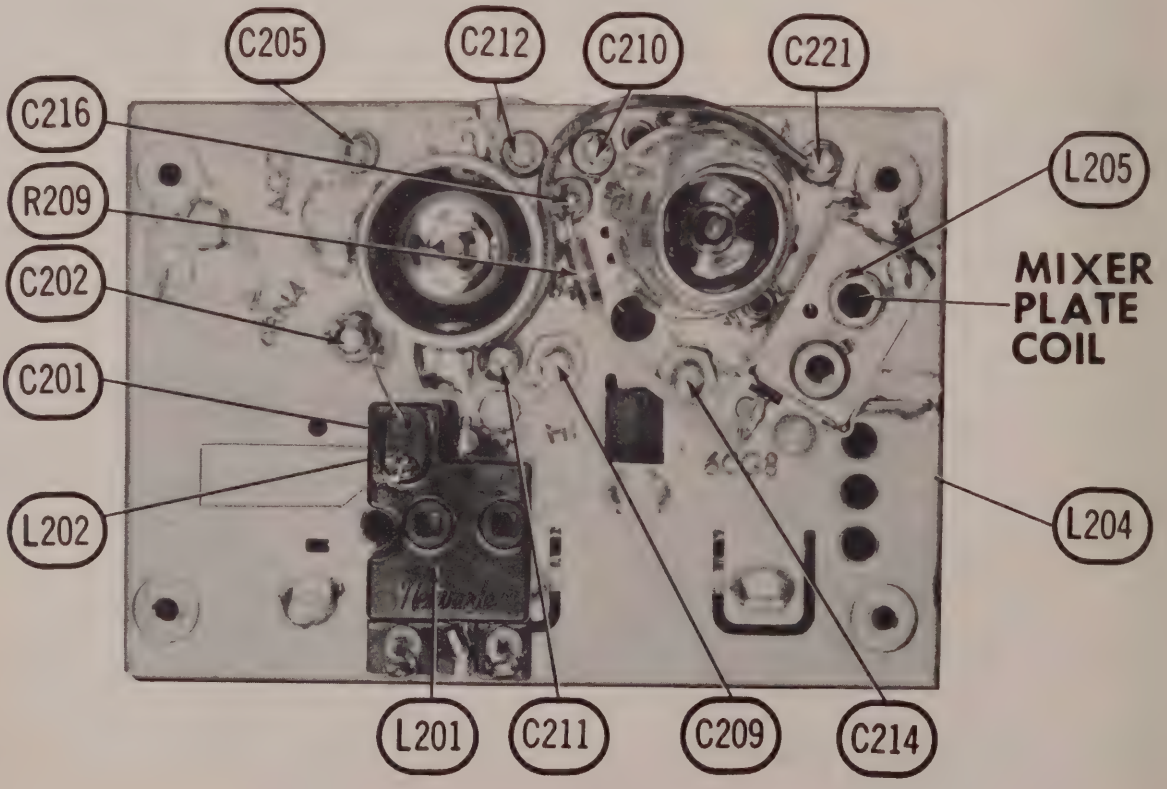
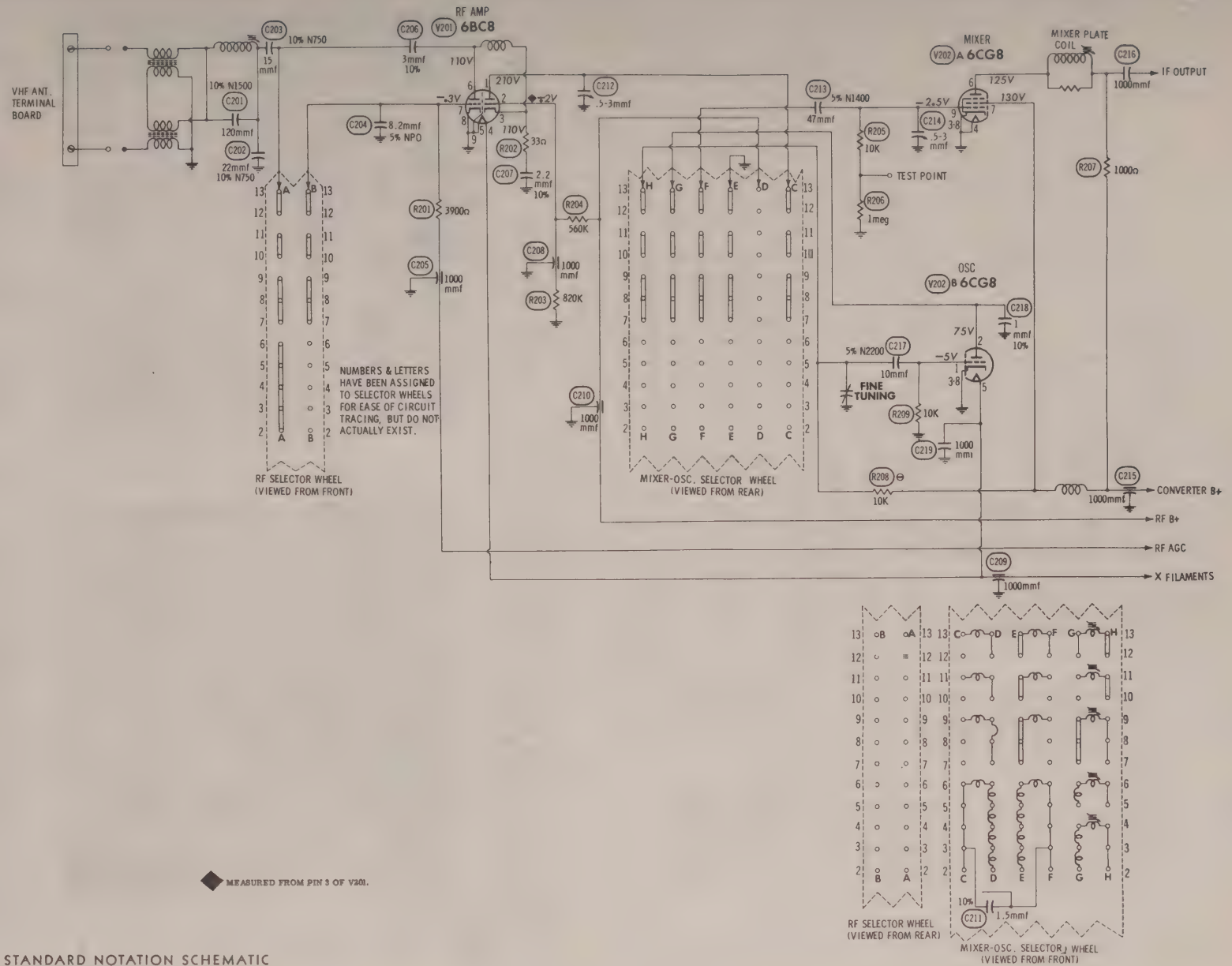


FIG. 201

TUNER #94D151-8 - TOP VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #94E144-25

ADMIRAL CHASSIS 17AB1, 17AK1, 17B1, B, 17J1, 17K1, 4R2, 8G1

TUNER PARTS LIST AND DESCRIPTIONS #94E144-25

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BC8	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		65D10-136							N1500 10%
C202	22		65D10-134	N750-DI 22	TCN-22	C10Q22U	TC7-22		5TCU-Q22	N750 10%
C203	15		65D10-135	N750-DI 15	TCN-15	C10Q15U	TC7-15		5TCU-Q15	N750 10%
C204	8.2		65D10-131	NPO-SI 8.2		C10V82C	TCO-8.2			NPO 5%
C205	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C206	3		65B28-030	NPO-SI 3.0		C10V3C	TCO-3.0			10%
C207	2.2		65D10-27	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	10%
C208	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C209	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C210	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C211	1.5		65B28-015	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	10%
C212	.5-3		66A38-6		829-3		3115-D	CT565A		
C213	47		65D10-73							N1400 5%
C214	.5-3		66A38-6		829-3		3115-D	CT565A		
C215	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C216	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C217	10		65D10-160							N2200 5%
C218	1		65B28-010							10%
C219	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	

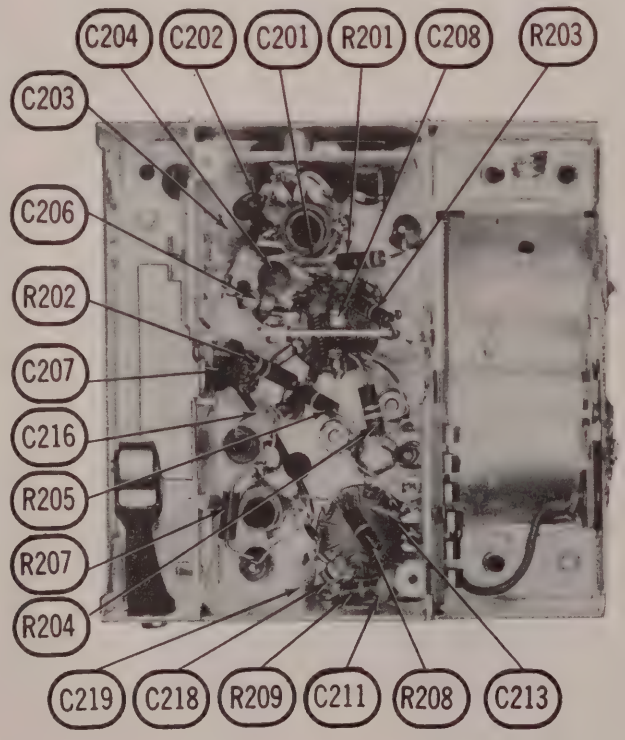
RESISTORS

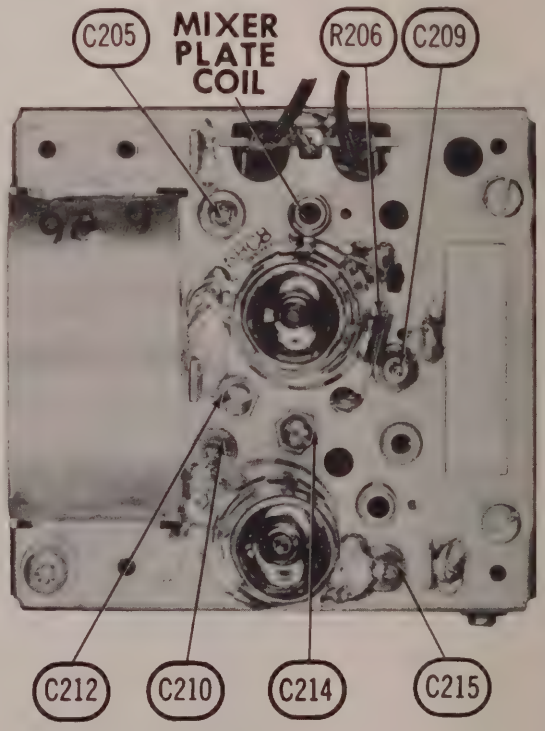
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R201	3900Ω		60B8-392	
R202	33Ω		60B8-330	
R203	820K		60B8-824	
R204	560K		60B8-564	
R205	10K		60B8-103	

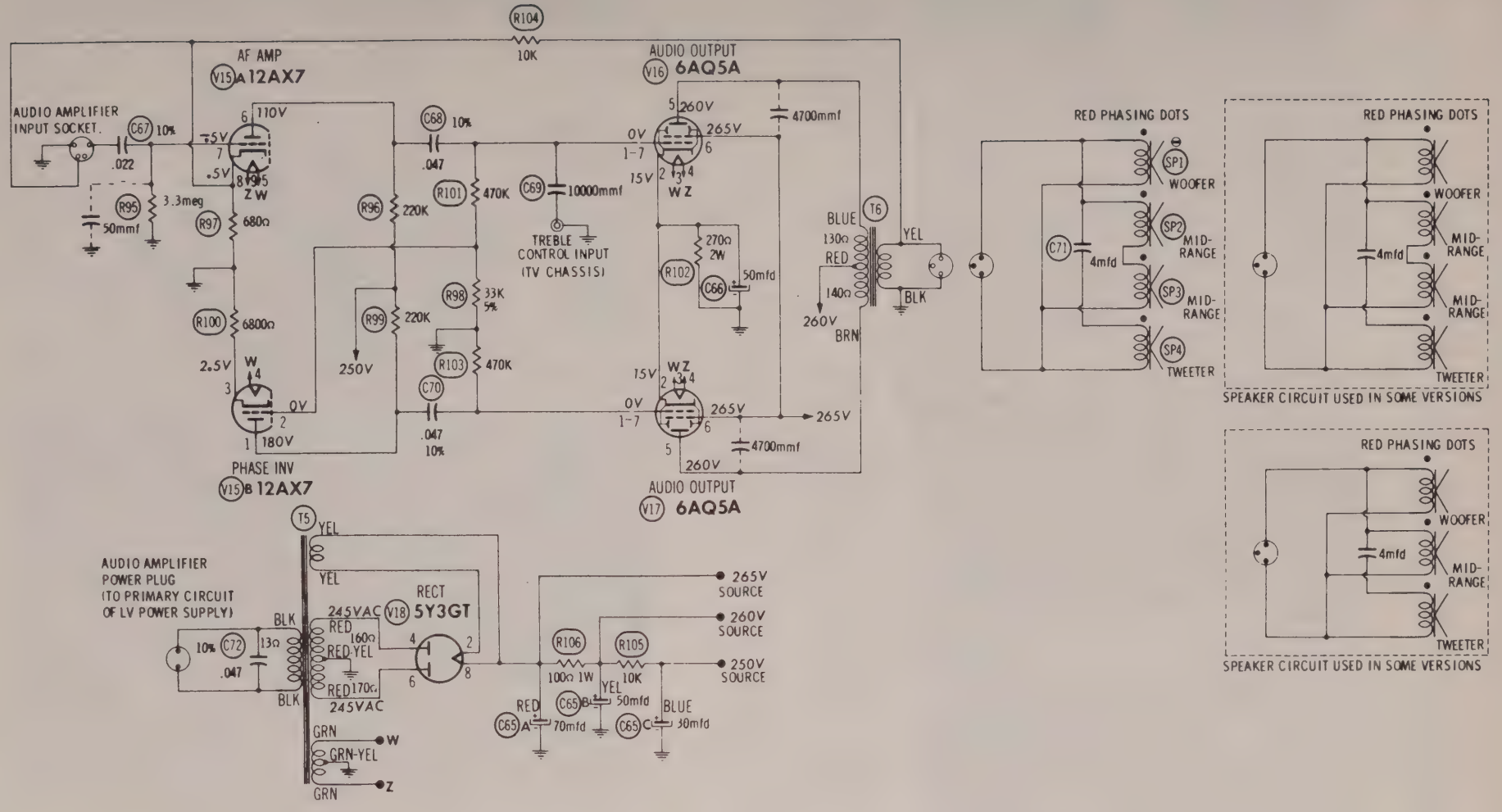
ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R206	1meg		60B8-105	
R207	1000Ω		60B8-102	
R208	10K		60B8-103	Note 1
R209	10K		60B8-103	

Note 1. Some versions may use 22K (Part #60B8-223) in this application.





RF TUNER #94E144-25

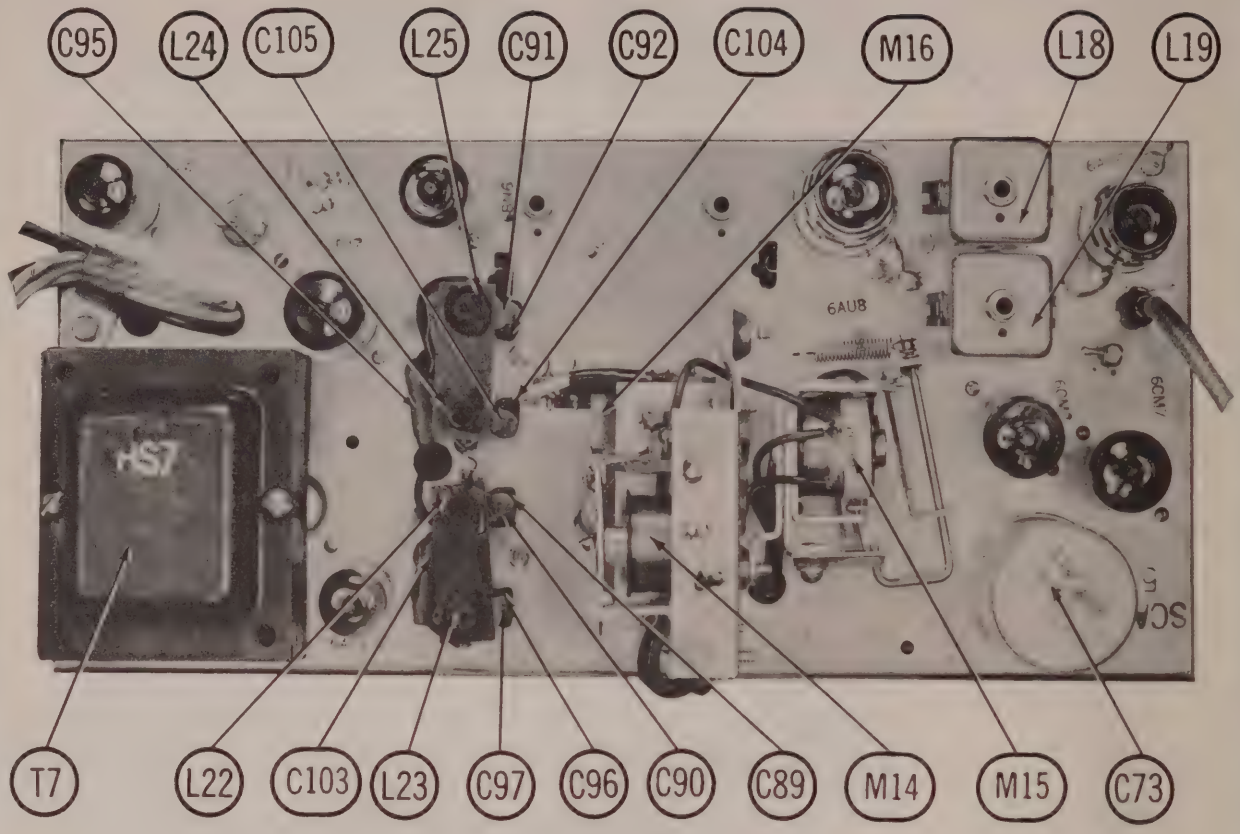


Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

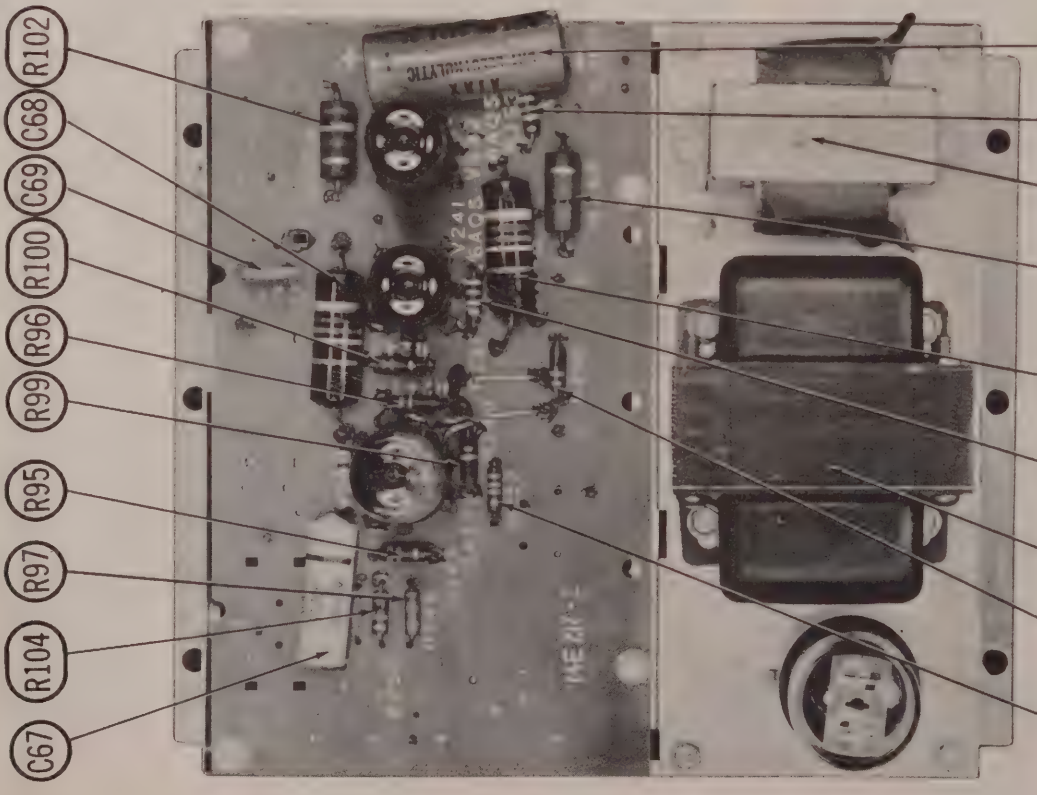
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

AMPLIFIER CHASSIS 4R2

ADMIRAL CHASSIS 17AB1, 17AK1, 17B1, B, 17J1, 17K1, 4R2, 8G1



REMOTE CONTROL CHASSIS - TOP VIEW



ITEMS C65 & C72 LOCATED ON BOTTOM SIDE OF CHASSIS.

AMPLIFIER CHASSIS

TUNER #94D151-4 PARTS LIST & DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120			NPO-DI 120	DD-121	L10T12		MS-312	10%
C202	30								5%
C203	28		94D131-81						10%
C204	12		94D131-95						10%
C205	800								
C206	5-10		94D151-83						
C207	47								
C208	1-4.5		94D131-83						
C209	800								
C210	1-4.5		94D131-83						
C211	47		94D131-87						
C212	30		94D131-88						
C213	1000		94D131-89						
C214	800								N750
C215	6.8		94D131-92						
C216	7.5								N330
C217	1000			EF-001	MFT-1000			503C-D1	
C218	800								
C219	800								

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			
R202	1000Ω			
R203	3900Ω			
R204	220K			

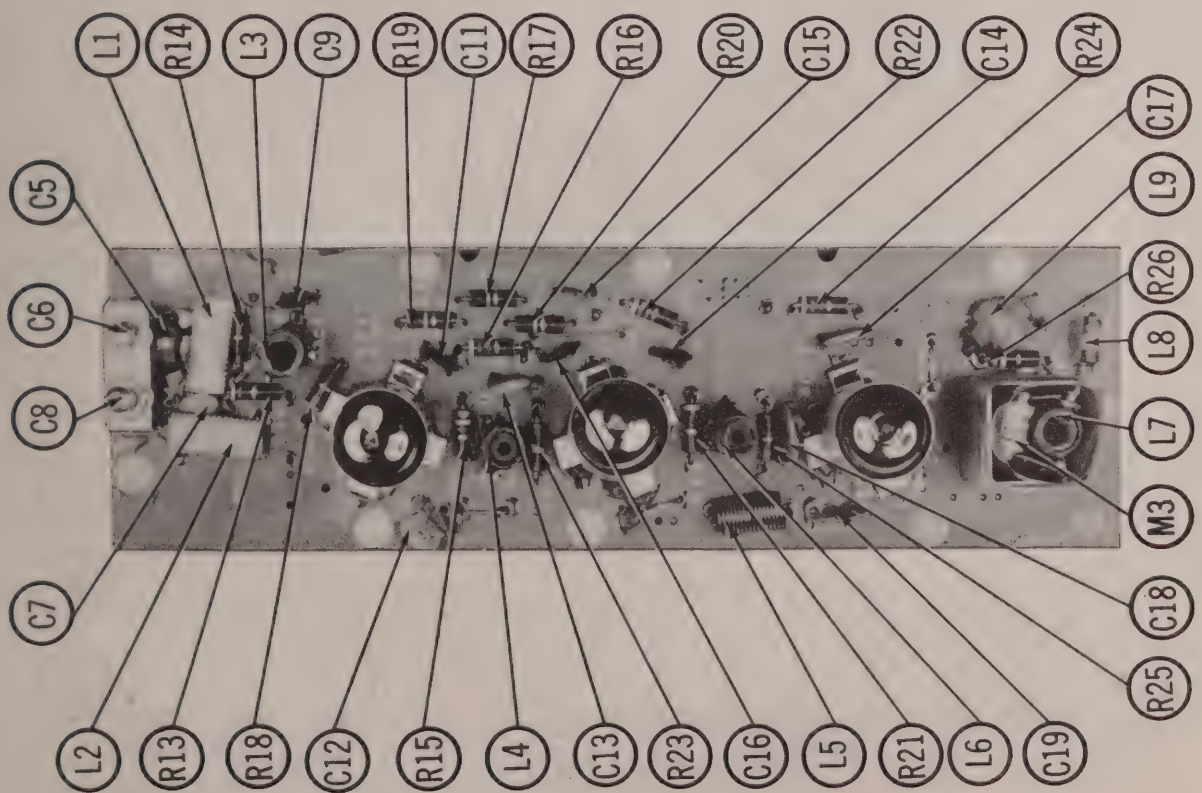
ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R205	10K			
R206	3900Ω			Note 1
R207	3900Ω			
R208	1000Ω			

Note 1. Some versions may use 6800Ω in this application.

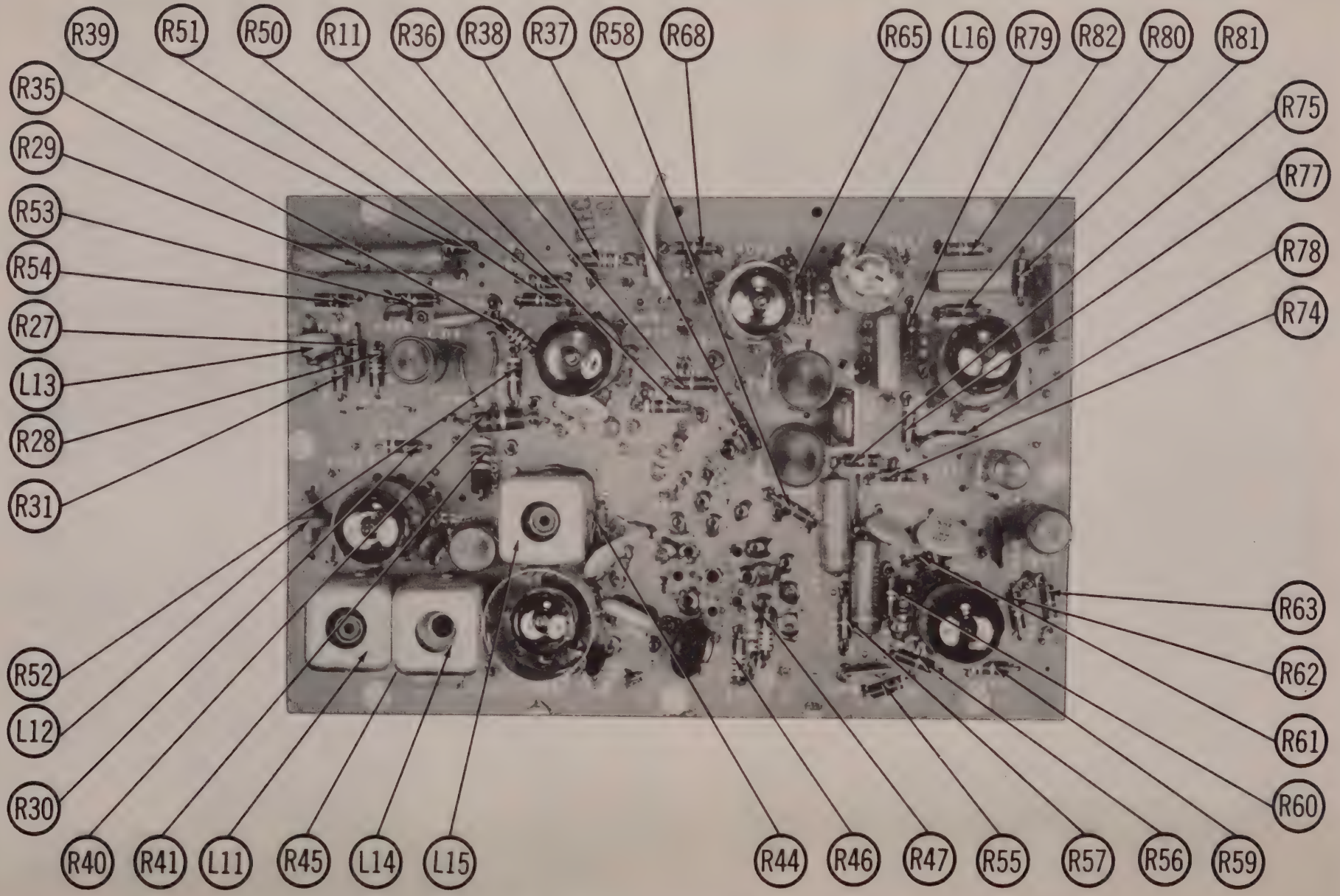
COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L201	Ant. Trans.	94D131-68	Complete Assy.
L202	Ant. Trap	94D131-51	

ITEM No.	USE	ADMIRAL PART No.	NOTES
L203	Mixer Plate Coil	94D151-66	



VIDEO IF PRINTED BOARD



MAIN PRINTED BOARD - RESISTOR,INDUCTOR IDENT.

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	6BZ6	
V2	2nd. Video IF Amp.	6BZ6	
V3	3rd. Video IF Amp.	6CB6	
V4	Video Output-Sound IF Amp	6AW8A	
V5	AGC Keying-Noise Limiter-Sync Sep.	6BU8	
V6	Audio Det.	6DT6	
V7	Vert. Mult. -Sync Phase Inv.	6CG7	
V8	Vert. Mult. -Vert. Output	6DB5	
V9	Horiz. Mult.	6CG7	
V10	Horiz. Output	6CD6GA	
V11	Damper	6AU4GTA	
V12	HV Rect.	1B3GT	
V13	LV Rect.	5V3	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V14	21CEP4A		21CEP4 ①	21CEP4 ②	① "Silverama" ® ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲60	300	67D15-308	AFH3-29-25	C0234	FP330.9	TMD-89	D-147	TVL-2639
B	▲100	300							
C2A	▲60	300	67D15-309	AFH4-46-10		FP419.11		Q-149	R2631 *
B	■5	300							
C	▲50	50							
D	20	50①							
C3A	▲50	300	67D15-204	AFH3-41	C0320	FP396.2	TMT-36	D-132	R2574 *
B	▲10	300							

① This section not used. * Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.022	400	64B8-30	P488N-022		CUB4S22	GEM-4122	4TM-S22	
C5	14		65D6-40						NPO 2%
C6	.5-8		66A38-8						
C7	18		65D10-121						NPO 5%
C8	3-13		66A38-7						
C9	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C10	1.0	100	64A10-3	P288N-1.0		CUB2W1	GEM-21	2TM-M1	
C11	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C12	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C13	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C14	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C15	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C16	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C17	560		65D6-131						N330 5%
C18	5000		65D10-152	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C19	820		65D10-91		DD-821	BYA10T82		5GA-T82	
C20	.22	400	64B8-24	P488N-22		CUB4P22	GEM-4022	4TM-P22	
C21	.1	200	64C16-53	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C22	10000		65D10-41	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C23	1000		65D10-53	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C24	300		65D10-141	DI-300	DD-301	L10T3	UC-533	5GA-T3	
C25	.47	400	64B8-72	P488N-47		CUB4P47	GEM-4047	4TM-P47	
C26	.047	200	64C16-55	P288N-047		CUB2S47	GEM-4147	2TM-S47	
C27	4700		65D10-71	BPD-0047	DD-472	BYA10D47M	UC-5247	5HK-D47	
C28	10000		65D10-41	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C29	10000		65D10-41	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C30	100		65D10-105		DTZ-100				NPO 5%
C31	75		65D10-79	N750-D1 75	DTN-75	C10Q75U	NT-5475	5TCU-Q75	N750 ①
C32	35		65D10-78						N220 ①
C33	1500		65D10-103	BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C34	4700		65D10-112	BPD-0047	DD-472	BYA10D47	UC-5247	5HK-D47	
C35	150		65D10-85	BPD-00015	DD-151	L10T15	UC-5315	5GA-T15	
C36	10000		65D10-41	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C37	4700		65D10-71	BPD-0047	DD-472	BYA10D47M	UC-5247	5HK-D47	
C38	4700		65D10-71	BPD-0047	DD-472	BYA10D47M	UC-5247	5HK-D47	
C39	10000		65D10-41	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C40	2200		65D10-111	BPD-0022	DD-222	BYA10D22	UC-5222	5HK-D22	
C41	.001	2000	64B2-32						
C42	.1	400	64C16-130	P488N-1	DF-104	BC6DLJ	ACE-401	4SE-P10	
C43	.047	200	64C15-155						10%
C44	.1	400	64C16-30	P488N-1	DF-104	BC6DLJ	ACE-401	4SE-P10	
C45	.022	600	64B22-11						10%
C46	.047	600	64B8-41						10%
C47	.001	400	64B2-24				GEM-1621		10%
C48	.001	400	64B2-24				GEM-1621		10%
C49	4700		65D10-71	BPD-0047	DD-472	BYA10D47	UC-5247	5HK-D47	
C50	.022	200	64C16-57	P288N-022		BC2S22J	ACE-6122	2SE-S22	
C51	3900		65B21-392	1469-0039		1R5D39		MS-239	10%
C52	390		65B21-391	1469-00039	MD-391	5R5T39		MS-339	10%
C53	680		65B21-681	1469-0068	MD-681	1R5T68		MS-268	10%
C54	4700		65D10-71	BPD-0047	DD-472	BYA10D47	UC-5247	5HK-D47	
C55	.047	400	64B8-28	P488N-047		CUB4S47	GEM-4147	4TM-S47	
C56	.001	1600	64B2-32		DD30-102	CUB16D1	GEM-1621	MB-D1	
C57	.01	600	64B8-32	P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C58	1000	5000	65D10-164		DD60-102				
C59	.1	600	64B8-7	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C60	150	2000	65D10-149						N1500 10% ②
C61	150	2000	65D10-149						N1500 10% ②
C62	120	2000	65D10-148						N1500 10%
C63	.033	600	64C25-10	P688N-033		CUB6S33	GEM-6133	6TM-S33	
C64	.047	600	64B2-36	P688N-047		CUB6S47	GEM-6147	6TM-S47	③

① Not used in chassis stamped Run 22 and higher.
② Ch. 17AB1, 17AK1, 17B1, 17K1 use 210mmf ③ 2000V in this application (Part #65D10-164).
③ Ch. 17AB1, 17AK1, 17B1, 17K1 use .01 in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1	3meg	½	75B41-1						Volume-Tape ② 1meg & 1.5meg
R2A	3meg	½	75B17-21	F1-79		▪(QJ-964	▪▪(UE3810		Bass
B	1meg			R2-51					Treble
R3A	100K	½	75B17-22	F1-31		▪(QJ-1079	▪▪(UE3790		Brightness
B	1000Ω			R2-5					Contrast
R4A	300K	½	75D13-82	AB-46	A47-300K-8	QJ-129	U43		Vert. Hold
B	Shaft			AK-8	NQ		D8-37		
R5A	500Ω	½	75D20-103	AB-4	A47-500-S	QJ-103	PTA52L		Vert. Lin., Note 1
B	Shaft			AK-1	FKS-1/4	TQ	Not Req.		
R6A	1.5meg	½	75D20-105	BX-742	A47-1.5meg -S	QJ-128	TA15L		Height, Note 3
B	Shaft			Not Req.	FKS-1/4	TQ	Not Req.		
R7A	100K	½	75D20-106	AB-40	A47-100K-S	QJ-128	PTA15L		Super Range Finder, Note 3
B	Shaft			AK-19	RN-3	TQ	Not Req.		
R8A	10K	½	75D20-101	AB-14	A47-10K-S	QJ-116	TA14L		Horiz. Drive, Note 4
B	Shaft			AK-1	FKS-1/4	TQ	Not Req.		

• "Concentrikit" Equivalent : K-4 Kit, Base Elements & Shafts Bil-140, P1-304 (Panel)
Bil-137, R1-233 (Rear)

•• "STA-LOC" Equivalent: FC36A, OS2125, RU16L, S2687

▪ "Concentrikit" Equivalent: K-4 Kit, Base Elements & Shafts Bil-128, P1-304 (Panel)
Bil-108, R1-233 (Rear)

▬ "STA-LOC" Equivalent : FC5L, OS2125, RU13R, S2625

Note 1. Alternate Part #75B20-103 may be used in some versions.
Note 2. Alternate Part #75B20-105 may be used in some versions.
Note 3. Alternate Part #75B20-101 may be used in some versions.
Note 4. Alternate Part #75B20-106 may be used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	WATT	ADMIRAL PART No	NOTES
R9	8200Ω	2	60B20-822	Note 1
R10	2200Ω	1	60B8-222	Note 2
R11	4.7meg		60B8-475	
R12	10meg		60B8-106	Note 3
R13	4700Ω		60B8-472	
R14	1000Ω		60B8-102	
R15	39K		60B8-393	Note 4
R16	470Ω		60B8-471	
R17	22K		60B8-223	
R18	47Ω		60B8-470	
R19	220K		60B8-224	
R20	220K		60B8-224	
R21	4700Ω		60B8-472	
R22	470Ω		60B8-471	
R23	68Ω		60B8-680	
R24	470Ω		60B8-471	
R25	150Ω		60B8-151	
R26	3900Ω		60B8-392	
R27	100Ω		60B8-101	
R28	47K		60B8-473	
R29	5600Ω 10%	4	61B24-443	
R30	3900Ω		60B8-392	
R31	180Ω		60B8-181	Note 5
R32	180K		60B8-184	
R33	39K		60B8-393	
R34	120K		60B8-124	Note 6
R35	390K		60B8-394	
R36	2.2meg		60B8-225	
R37	150K		60B8-154	
R38	47K		60B8-473	
R39	15K		60B8-153	
R40	8200Ω		60B14-822	
R41	47K	1	60B14-473	
R42	330K		60B8-334	
R43	100K		60B8-104	
R44	8200Ω		60B8-822	
R45	680Ω		60B8-681	
R46	390K		60B8-394	
R47	39K		60B8-393	
R48	100K		60B8-104	
R49	33K		60B7-333	
R50	47K		60B8-473	
R51	56K		60B8-563	
R52	4.7meg		60B8-475	
R53	270K		60B8-274	
R54	15K		60B8-153	
R55	4.7meg		60B8-475	
R56	2.2meg		60B8-225	
R57	6800Ω		60B8-682	
R58	5600Ω		60B8-562	
R59	3300Ω		60B8-332	
R60	15K		60B8-153	
R61	15K		60B8-153	
R62	220K		60B8-224	
R63	470K		60B8-474	
R64	56K		60B8-563	
R65	2.2meg		60B8-225	
R66	470Ω	3	61B24-317	
R67	220K		60B8-224	
R68	100Ω		60B8-101	
R69	18K	1	60B14-183	
R70	180Ω	1	60B14-181	
R71	220Ω			
R72	3.8Ω Cold		61A-27	
R73	230Ω			
R74	100K 8%		80B7-104	
R75	100K 5%		80B7-104	
R76	22K	2	60B20-223	
R77	4.7meg		60B8-475	
R78	470K		60B8-474	
R79	5600Ω		60B8-562	
R80	1000Ω		60B8-102	
R81	110K 5%		60B7-114	
R82	82K		60B8-823	
R83	100Ω		60B8-101	
R84	470K		60B8-474	
R85	100Ω		60B8-101	
R86	10K	3	61B21-349	
R87	150K		60B8-154	Note 7
R88	470K		60B8-474	
R89	4700Ω		60B8-472	
R90	1.8Ω		60B35-48	Note 8
R91	1000Ω	3	60B20-102	
R92	3000Ω	7	61B30-15	
R93	270K	1	60B14-274	Note 9
R94	270K		60B8-274	

Note 1. Ch. 17B1, 17K1 use 3200Ω 3W(Part #60B20-322). Ch. 17AB1, 17AK1 stamped Run 30 and higher use 1800Ω 2W (Part #60B20-182).
Note 2. Not used in Ch. 17AB1, 17AK1 stamped Run 20 and higher.
Note 3. Ch. 17AB1, 17AK1 stamped Run 18 thru 20 use 15meg in this application (Part #60B8-156).
Note 4. Some versions may use 15K in this application (Part #60B8-153).
Note 5. Some versions may use 470Ω in this application (Part #60B8-471).
Note 6. Chassis stamped Run 18 and lower use 100K in this application (Part #60B8-104).
Note 7. Some versions may use 330K in this application (Part #60B8-334).
Note 8. Some versions may use 1.2Ω in this application.
Note 9. Not used in chassis stamped Run 14 and lower.

TRANSFORMER (POWER)

ITEM No	RATING			REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	ADMIRAL PART No.	Hallicrafters PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ②1.84A	520VCT ②.270A	5V ③3.6A	80C62-2 ①					28R47	
	SEC. 3									
	6.3V ③9.7A									
	PRI.	SEC. 1	SEC. 2							
	117V ②1.8A	520VCT ②.300A	5V ③3.5A	80C35-12 ② 80C62-1 ④ 80C35-13 ⑤			P-2830 ③		28R88 ③	R-51BC ③
	SEC. 3									
	6.3V ③10A									

① Used in Ch. 17J1 Run 18 and early production of Ch. 17AB1, 17AK1.
② Used in early production of Ch. 17J1.
③ Parallel and phase filament windings.
④ Alternate part number used in early production of Ch. 17AB1, 17AK1.
⑤ Used in Ch. 17B1B and Run 19 and higher of Ch. 17AB1, 17AK1, 17B1, 17K1.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		ADMIRAL PART No	Hallicrafters PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	
T2	Vert. Output	79B43-14						A-113X ①	
T3A	Yoke-Horiz.(15.4MH)	94D47-3 ③		MDF-117②	Y-110 ③	DY-27A④	Y-52 ⑤	Y-60 & NW35	
B	(10°)-Vert.(3.6MH)								
	Alt. Yoke	94D50-3							
M11	Rear Cover & Centering Device	94C148-1 ③							
	Rear Cover & Centering Device	94C152-1 ⑤							
T4	Horiz. Output	79D77-3			X162		FLY-137		

① Connect as autoformer.
② Includes R71, R72 and R73.
③ Use original yoke damping network, if necessary.
④ 3 3/4" rear cover and centering device used with yoke 94D47-3.
⑤ 3 1/4" rear cover and centering device used with yoke 94C150-3.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP	ADMIRAL PART No.	QUAM PART No.	
SP1	6" x 9"	PM	6-8Ω	78C138-3 ①	69A3Z6.4	① Used in Models LH2F52, 53, 54, LHA2F52, 53, 54, LHR2F52
SP2	6" x 9"	PM	6-8Ω	78C138-3 ①	69A3Z6.4	
SP3	3½"	PM	3-4Ω	78B91-2 ②	3A15T23	② Used in all models.
SP4	3½"	PM	3-4Ω	78B91-2 ②	3A19T23	③ Used in Models CH2F52, 53, 54, CHA2F52, 53, 54
	10"	PM	3-4Ω	78C114-2 ③		④ Used in Models HF2F23, 23, HFA2F23, 23
	2" x 10"	PM		78C140-1 ④		
	6"	PM		78B92-5 ④		
	9"	PM		78B139-2 ④		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No	Ram PART No	
L1	47.25MC Trap Coil	73B37-1					1.36 Microhenries, Note 1
L2	41.25MC Trap Coil	73B37-1					1.36 Microhenries, Note 1
L3	1st. Video IF	73C132-31					
L4	2nd. Video IF	73C132-33					Note 2
L5	Fil. Choke	73B37-2	19-1001	BC-862	4604		1.4 Microhenries, Note 3
L6	3rd. Video IF	73C132-32					Note 2
L7	4th. Video IF	72B191-2					Includes 3.3mmf Cap, and M3
L8	RF Choke	73B24-7					7.7 Microhenries
L9	Shunt Peaking Coil	73B5-20	19-3500	TV-203	6174	VP-8	500 Microhenries
L10	RF Choke	73B31-3					25 Microhenries
L11A	4.5MC Trap	72B185-2					Includes Caps
B	1st. Sound IF						
L13	Series Peaking Coil	73B5-23	19-3160 *	TV-184 *	6160 *	VP-5 *	189 Microhenries, wound on a 470Ω resistor
L13	Shunt Peaking Coil	73B5-36					Wound on 10K resistor
L14	2nd. Sound IF	72B186-1					
L15	Quadrature Coil	73C132-18					Note 4

* Parallel with 4700Ω resistor.
Note 1. Part #73B37-3 used in Ch. 17AB1, 17AK1, 17B1 and 17K1.
Note 2. Part #72C132-38 used in Ch. 17AB1, 17AK1, 17B1 and 17K1.
Note 3. Part #73B37-2 used in Ch. 17AB1, 17AK1, 17B1 and 17K1.
Note 4. Part #72C132-37 used in Ch. 17AB1, 17AK1, 17B1 and 17K1.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No	
L16	52Ω		94C17-4		TV-164				22-46 Millihenries

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE 10 CURRENT 1000 (~)	ADMIRAL PART No	Hallicrafters PART No.	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L17	295A @ 240VDC	42Ω	1.5 Hy.	74B18-25	CS037	C-2996		C-2326 ①	36C93	C-17X

① Drill new mounting hole.

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	ADMIRAL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1		93B6-4 ①	1215 ①②	1T1 ① ②			① Selenium Type. ② Two required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA						NOTES
			ADMIRAL PART No.		LITTELFUSE PART No.		BUSS PART No.		
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER	
M2	N	1/2A 125V 8/9	84A13-36		333.500 (N-1/2A-125V-8/9)	346009	N 1/2	HN 3/10 to 1/2	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	
M3	K8 *		1N60	1N60	Video Det. (Pigtail)

* Some versions may use 1N87 or 1N395 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Lamp	81A1-5	#44
M5	Lamp	81A1-5	#44
M6	Tuner	94D151-4	VHF Ch. 17J1
	Tuner	94D151-8	VHF Ch. 17B1B
	Tuner	94E144-25	VHF Ch. 17B1, 17K1
	Tuner	94E144-23	UHF-VHF Ch. 17AB1, 17AK1
	Tuner	94D113-3	UHF Ch. 17AB1, 17AK1
M7	Switch	77A70-3	Pushbutton, Off-On
M8	Switch	77A86	Channel Indexing
M9	Switch	77A81	Motor Disconnect
M10	Switch	76B36-3	TV-Phono, Function
M11	Centering Device	94C148-1	Includes yoke rear cover, 3 3/4" Diameter
	Centering Device	94C152-1	Includes yoke rear cover, 3 1/4" Diameter
M12	Motor	91C18-3	Includes gear assy.
	Printed Board	A5775-2	Video IF
	Printed Board	A5780-3	[redacted]

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO	DESCRIPTION
Safety Glass	21D97-2	
Mask	23E286-8	Gold
Mask	23E286-1	Silver
Knob	33D231-10	Channel Selector
Knob	33D231-16	Fine Tuning
Indicator	33C258-4	VHF
Indicator	33C257-3	UHF
Knob	33C230-8	Base, Brightness
Knob	33C230-2	Contrast, Treble, Volume-On-Off
Knob	33C230-3	Vertical
Cabinet	35E400-2	Models CH2F52, CHA2F52
Cabinet	35E400-3	Models CH2F53, CHA2F53
Cabinet	35E400-4	Models CH2F54, CHA2F54
Cabinet	35E402-3	Models LH2F52, LHA2F52
Cabinet	35E402-3	Models LH2F53, LHA2F53
Cabinet	35E402-4	Models LH2F54, LHA2F54
Cabinet	35E405-2	Models HF2F23, HFA2F23
Cabinet	35E405-3	Models HF2F23, HFA2F23

WIRING DATA

High Voltage Lead	Use BELDEN No. [redacted]
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor) 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
General-use Unshielded Hook-up Wire	
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8235
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V15	AF Amp.-Phase Inv.	12AX7	
V16	Audio Output	6AQ5A	

ITEM No.	USE	TYPE	NOTES
V17	Audio Output	6AQ5A	
V18	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C65A	70	300	67B23-6	PR4-450	BBRQ0926.5		TMT-42	T-175	[redacted] *
B	50	300					TD-50-450	MT-4550	
C	30	250							
C66	50	25	67B4-31 ①	PR525V50	BBR50-25	TC29	TD-50-25	MT-0250	TVA-1306

① Alternate Part #67A4-31.
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	SPRAGUE PART No.	NOTES
C57	.022	200	64C24-61						10%
C58	.047	400	64C24-34						10%
C59	10000		65D40-41	HPD-01	DD-103	BYA10S1	DCSH	5HK-S1	
C70	.047	400	64C24-34				CA375X		10%
C71	4	10	64B-13-1						
C72	.047	600	64C24-9						10%

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R95	3.3meg		60B8-335	
R96	220K		60B8-224	
R97	680Ω		60B8-681	
R98	33K 5%		60B7-333	
R99	220K		60B8-224	
R100	6800Ω		60B8-682	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R101	470K 5%		[redacted]	
R102	2700	2	[redacted]	
R103	470K 5%		60B7-474	
R104	10K		60B8-103	
R105	10K		60B8-103	
R106	100Ω	1	60B14-101	

ADMIRAL CHASSIS 17AB1, 17AK1, 17B1, B, 17J1, 17K1, 4R2, 8G1

FOLDER 1

AMP PARTS LIST AND DESCRIPTIONS (cont)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T5	117V @ .42A	500VCT @ .060A	5V @ 1.89A	80B60-1	P9202	P-3149		PC8402	24R09U	R-6A
	SEC. 3	SEC. 4	SEC. 5							
	6.3VCT @ 1.2A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T6	5000Ω CT	3-4Ω	79C56-6	Z1402	A-2904	AU-600	A-3823	26S46	S-55Z	

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
	Printed Board	A5975	

REMOTE CONTROL PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V19	1st. AF Amp.	6AU6	
V20	2nd. AF Amp.-Tripler	6AU8	
V21	Limiter	6BN6	
V22	Discriminator	6AL5	

ITEM No.	USE	TYPE	NOTES
V23	Discriminator-Bias Rect.	6BJ7	
V24	Volume Relay Control	6CM7	
V25	On-Off-Channel Relay Cont.	6CM7	
V26	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C73A	▲60	350	67D15-310	AFH3-154-20	C0232	FP375.4	TMD-56	T-111	TVL-3640.2
B	■40	350					TD-40-350		
C	▲40	350							
C74	5	50	67A4-37	PRS50V5	BBR5-50	TC30	TD-5-50	MT-0504	TVA-1303

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C75	250			1469-00025	MD-251	22R5T22	MCE240	MS-325	5%
C76	20		65D10-158						N1500 5%
C77	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C78	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C79	39		65D6-88	NPO-DI 39		C10Q39C		5TCC-Q39	NPO 10%
C80	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C81	20		65D10-158						N1500 5%
C82	280		65A48-281						5%
C83	110		65D10-156						N750 5%
C84	1200								10%
C85	47			NPO-DI 47	DTZ-47	C10Q47C		5TCC-Q47	NPO
C86	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C87	30		65D10-157						N1500 5%
C88	400		65A48-401	1469-0004	MD-401	5R5T4	MCE243	MS-34	5%
C89	400		65A48-401	1469-0004	MD-401	5R5T4	MCE243	MS-34	5%
C90	30		65D10-157						N1500 5%
C91	30		65D10-157						N1500 5%
C92	400		65A48-401	1469-0004	MD-401	5R5T4	MCE243	MS-34	5%
C93	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C94	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C95	110		65D6-36	NPO-SI 110	TCZ-110				NPO 5%
C96	400		65A48-401	1469-0004	MD-401	5R5T4	MCE243	MS-34	5%
C97	30		65D10-157						N1500 5%
C98	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C99	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C100	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C101	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C102	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C103	110		65D6-36	NPO-SI 110	TCZ-110				NPO 5%
C104	400		65A48-401	1469-0004	MD-401	5R5T4	MCE243	MS-34	5%
C105	30		65D10-157						N1500 5%
C106	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C107	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C108	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C109	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	

REMOTE CONTROL PARTS LIST AND DESCRIPTIONS(cont)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R107	3.3meg			
R108	470Ω			
R109	2200Ω			
R110	43K 5%	1		
R111	3.3meg			
R112	470Ω			
R113	15K	2		
R114	3.3meg			
R115	220K			
R116	1000Ω			
R117	47K	1		
R118	220Ω			
R119	2.2meg			
R120	2.2meg			
R121	2.2meg			
R122	470K			

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R123	2.2meg			
R124	470K			
R125	470K			
R126	2.2meg			
R127	2.2meg			
R128	2.2meg			
R129	470K			
R130	2.2meg			
R131	470K			
R132	470K			
R133	470K			
R134	4700Ω			
R135	2700Ω			
R136	1000Ω	1		
R137	47K			

TRANSFORMER (POWER)

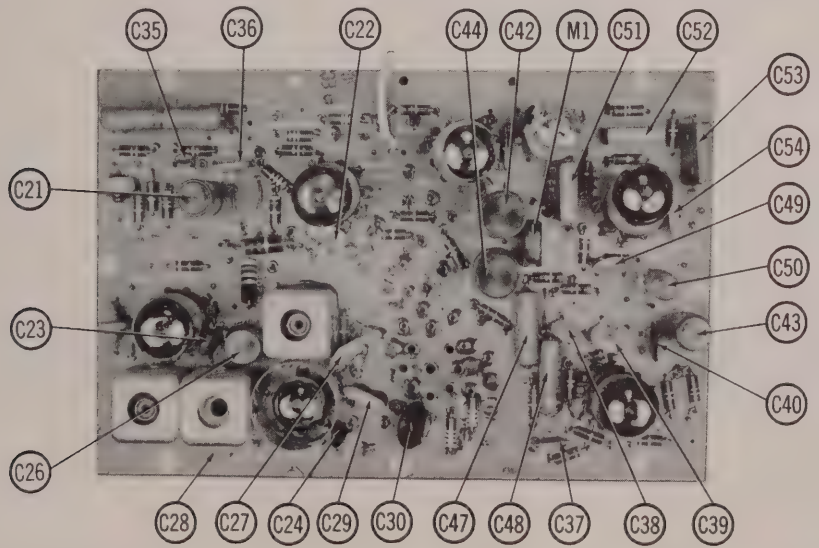
ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T7	117V @ .4A	220VAC @ .4A Tap @ 220VAC @ .030A Tap @ 30VAC @ .001A Tap @ 6.3VAC @ 3.8A	5.5V @ .250A	80B58-1						

COILS (RF-IF)

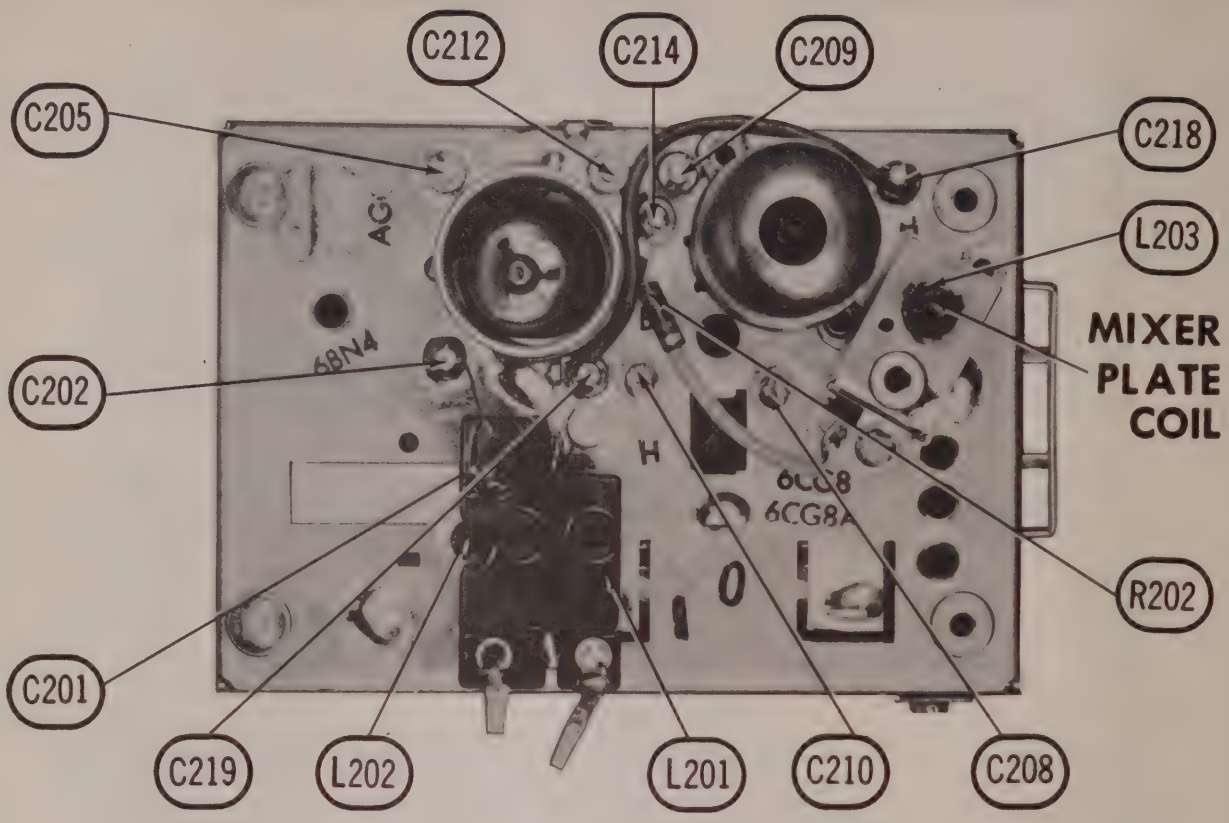
ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L18	1st. 40KC Plate Coil	72B193-1					
L19	2nd. 40KC Grid Coil	72B193-2					
L20	2nd. 40KC Plate Coil	72B192-1					
L21	Limiter Grid Coil	72B192-2					
L22	122-125.5KC Discriminator Primary Coil	72B192-2					
L23	122-125.5KC Discriminator Secondary Coil	72B192-3					Tapped @ 9.5Ω
L24	115KC Discriminator Primary Coil	72B192-2					
L25	115KC Discriminator Secondary Coil	72B192-3					Tapped @ 9.5Ω

MISCELLANEOUS

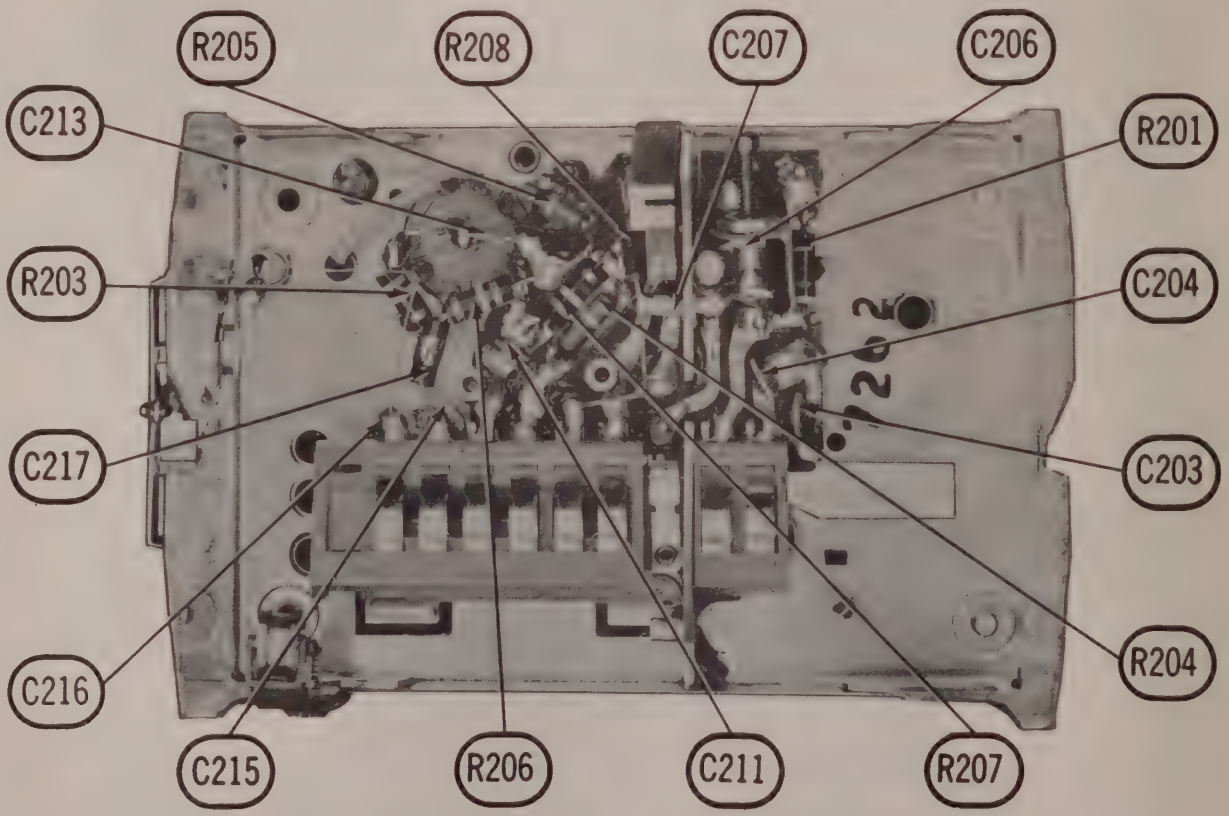
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M13	Switch	77B75-1	Manual-Remote
M14	Relay	83A13-1	Channel Selector
M15	Relay	83B11-1	On-Off
M16	Relay	83B14-1	Volume Control
M17	Microphone	78B137	



MAIN PRINTED BOARD-CAPACITOR IDENT.

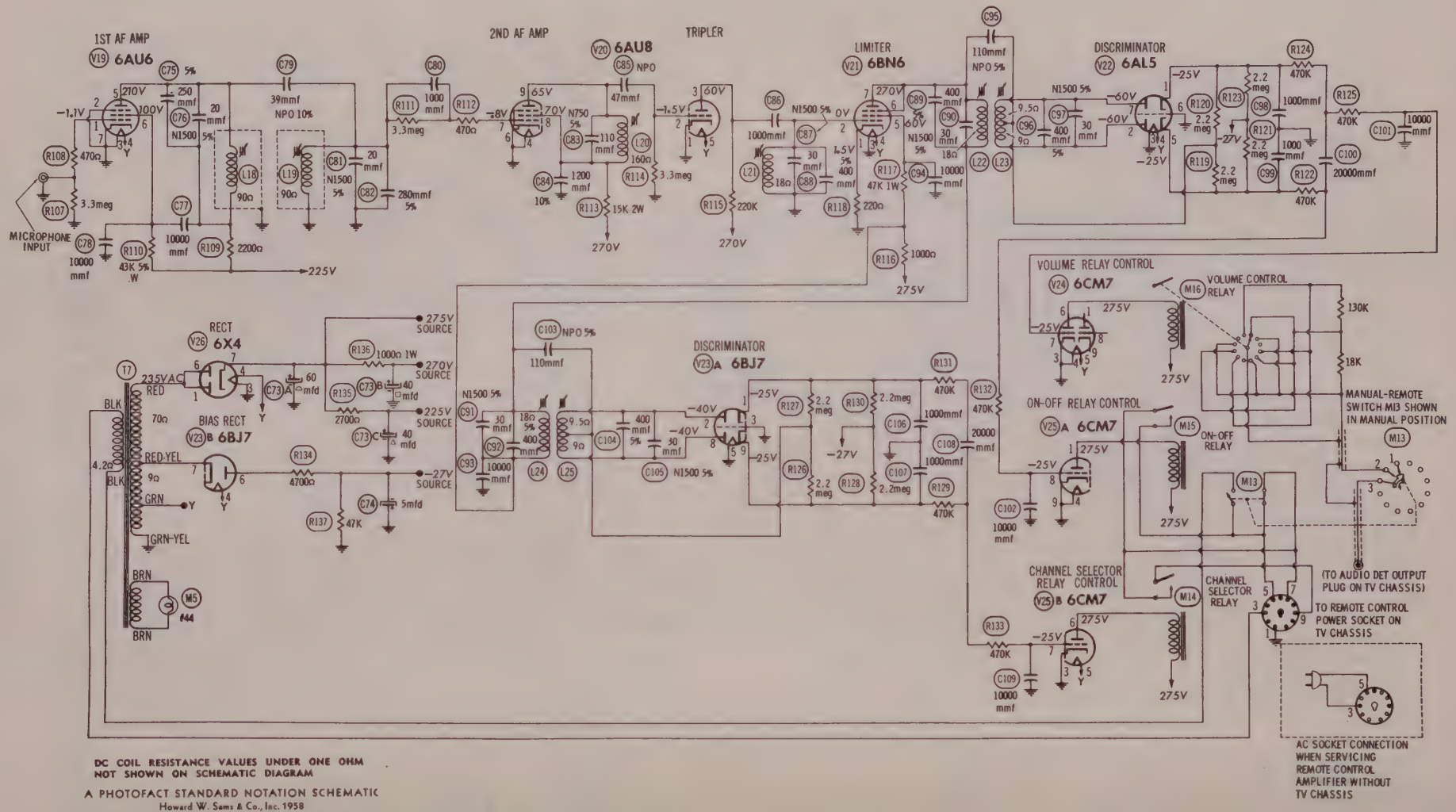


TUNER #94D151-4 TOP VIEW



TUNER #94D151-4 BOTTOM VIEW

REMOTE CONTROL CHASSIS - BOTTOM VIEW



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

REMOTE CONTROL CHASSIS 8G1

TUNER ALIGNMENT INSTRUCTIONS #94E144-23, 25

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.

VHF OSCILLATOR ALIGNMENT

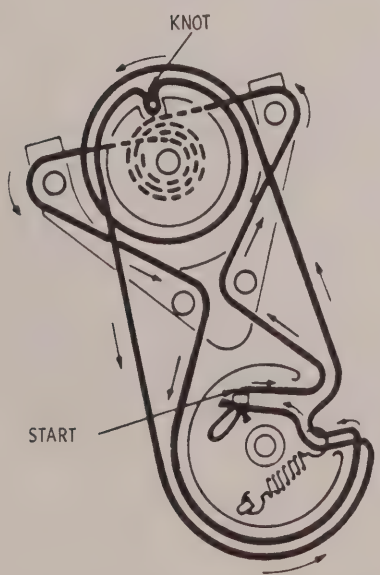
Turn the set on and allow 15 to 20 minutes warm-up period.
1. Set channel selector to the lowest channel operating in the area.
2. Set the fine tuning to the center of its range.
3. Set other controls for normal picture and sound.
4. Using a 1/8 inch non-metalic alignment tool, carefully adjust the oscillator slug for best picture and sound. (Note; this is not necessarily the point of loudest sound.) If two slugs are visible at the front of the tuner, adjust the one nearest the top of the tuner chassis. Repeat this procedure for the remaining stations, adjusting them in order of the channel number from the lowest to the highest.

VHF RF AND MIXER ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point ⓣ. Low side to chassis.	A201, A202	Adjust for response similar to Fig. 201 with markers above 90%.
2.	"	"	85MC	83.25MC 87.75MC	6	"	A203	Adjust for response curve similar to Fig. 201. Adjust for maximum amplitude and flat-topped appearance with markers properly positioned.
3.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 201. If markers fall below 70% on any high band channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. If markers fall below 70% on any low band channel, make compromise adjustment of A203 with channel selector set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

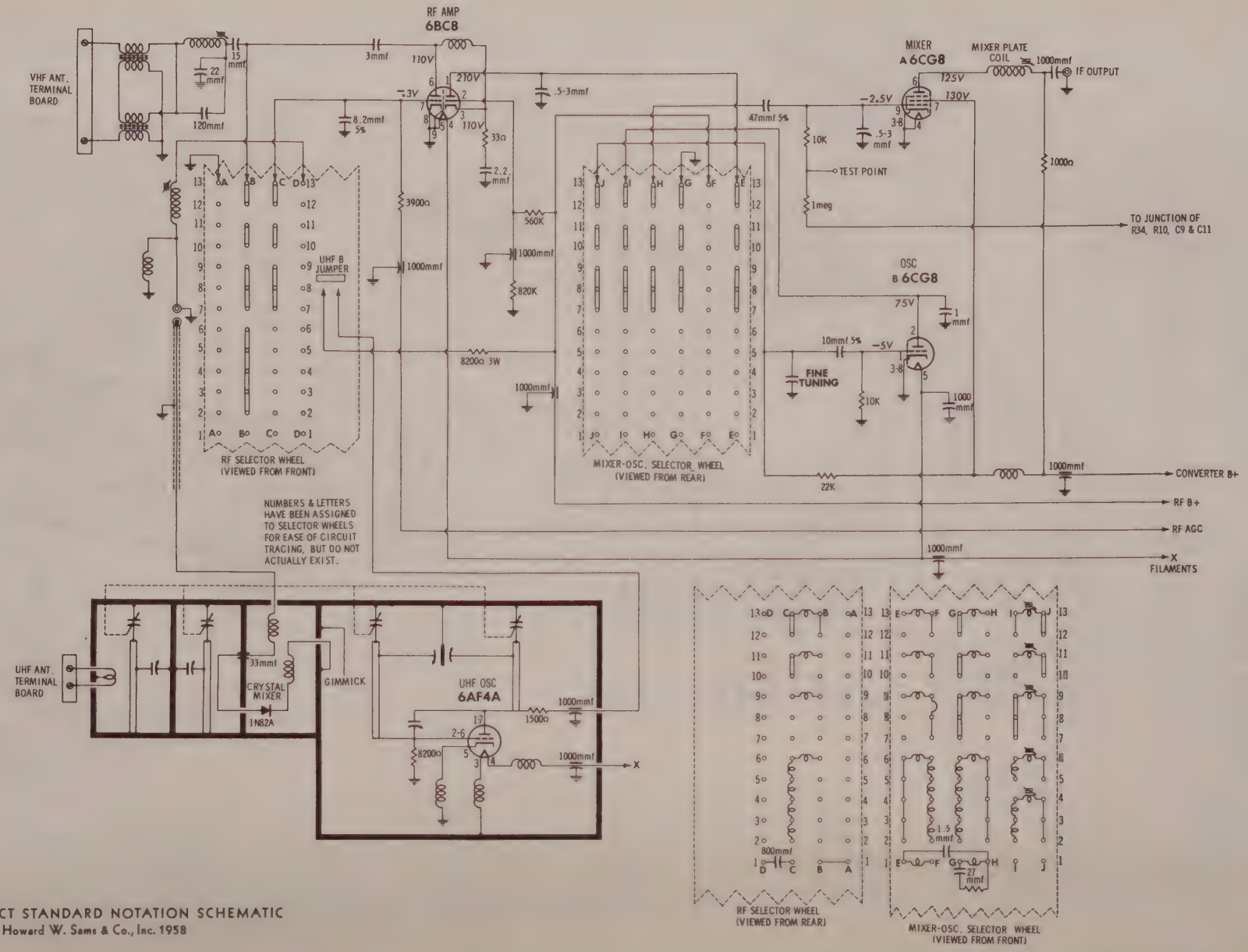
FIG. 201



DRIVE CORD FOR TUNER #94E144-23

ADMIRAL CHASSIS 17AB1, 17AK1, 17B1, B, 17J1, 17K1, 4R2, 8G1

FOLDER 1



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

UHF-VHF TUNER #94E144-23 & UHF TUNER #94D112-3

TUNER #94D151-8 PARTS LIST & DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer - Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C201	120			BPD-00012	DD-121	L10T12	UC-5312	5GA-T12	10%
C202	30		94D131-80						5%
C203	28		94D131-81						10%
C204	12		94D131-96						10%
C205	800		94D131-97						
C206	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1	
C207	5-10		94D151-83						
C208	47		94D131-86						5%
C209	1-4.5		94D131-83						
C210	800		94D131-97						
C211	800		94D131-97						
C212	30		94D131-88						
C213	47		94D131-87						10%
C214	1-4.5		94D131-83						
C215	1000		94D131-89						N750
C216	800		94D131-97						
C217	6.8		94D131-92						
C218	3		94D131-91						N330 10%
C219	2		94D131-93						N550 5%
C220									
C221	800		94D131-97						

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

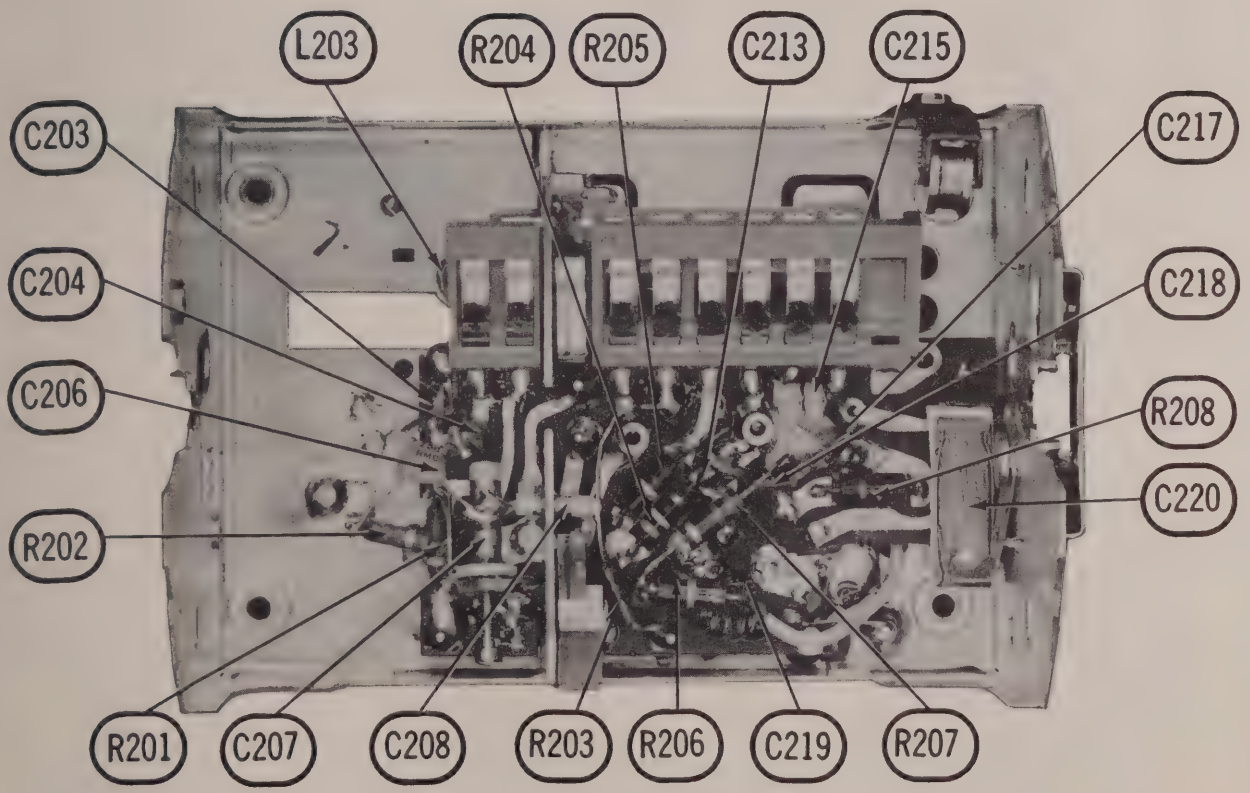
ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R201	4700Ω			
R202	2200Ω			
R203	1000Ω			
R204	3900Ω			
R205	220K			

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R206	10K			
R207	6800Ω			
R208	10K			
R209	1000Ω			

COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L201	Ant. Trans. Assy.	[illegible]	Includes C201
L202	IF Trap Coil	94D131-84	
L203	IF Trap Coil	[illegible]	
L204A	Ant., RF, Mixer Grid, Osc. Coils	94D131-52	Channel 2
B	"	94D131-53	Channel 3
C	"	94D131-54	Channel 4
D	"	94D131-55	Channel 5
E	"	94D131-56	Channel 6

ITEM No.	USE	ADMIRAL PART No.	NOTES
L204F	Ant., RF, Mixer Grid, Osc. Coils	94D131-57	Channel 7
G	"	94D131-58	Channel 8
H	"	94D131-59	Channel 9
I	"	94D131-60	Channel 10
J	"	94D131-61	Channel 11
K	"	94D131-62	Channel 12
L	"	94D131-63	Channel 13
L205	Mixer Plate Coil	94D151-66	



TUNER #94D151-8 - BOTTOM VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	150K	47Ω	0Ω	.1Ω	▲ 470Ω	▲ 470Ω	0Ω		
V2	6BZ6	▲ 22K	▲ 68Ω	.1Ω	0Ω	† 470Ω	† 470Ω	150K		
V3	6CB6	.1Ω	150Ω	.1Ω	0Ω	† 4500Ω	† 4500Ω	0Ω		
V4	6AW8A	0Ω	100K	† 47K	0Ω	.1Ω	• 50Ω	4000Ω	† 7000Ω	† 5600Ω
V5	6BU8	† 4000Ω	† 8200Ω	2meg	.1Ω	0Ω	† 18K	• † 400K	† 25K	† 4.7meg
V6	6DT6	16Ω	680Ω	0Ω	.1Ω	† 430K	† 12K	560K		
V7	6CG7	• † 1.1meg	220K	• 130K	.1Ω	0Ω	† 12K	1.5meg	3300Ω	0Ω
V8	6DB5	† 18K	• 300Ω	2.2meg	.1Ω	0Ω	2.2meg	• 300Ω	NC	† 750Ω
V9	6CG7	† 5600Ω	550K	1000Ω	.1Ω	0Ω	† 82K	110K	1000Ω	0Ω
V10	6CD6GA	TP	0Ω	0Ω	NC	470K	TP	.1Ω	† 10K	TOP CAP ‡ 9Ω
V11	6AU4GTA	NC	NC	¶ 650K	NC	† 0Ω	NC	.1Ω	0Ω	
V12	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡ 459Ω
V13	5V3	NC	¶ 20K	NC	13Ω	NC	15Ω	NC	¶ 20K	
V14	21CEP4A	.1Ω	39K	‡ 270K	‡ 270K	NC	NC	• 200K	0Ω	
V15	12AX7	†† 230K	33K	6800Ω	.1Ω	.1Ω	†† 230K	3.3meg	680Ω	.1Ω
V16	6AQ5A	500K	270Ω	.1Ω	.1Ω	†† 230Ω	†† 0Ω	500K		
V17	6AQ5A	470K	270Ω	.1Ω	.1Ω	†† 240Ω	†† 0Ω	470K		
V18	5Y3GT	NC	¶ 20K	NC	160Ω	NC	170Ω	NC	¶ 20K	
V19	6AU6	3.3meg	0Ω	0Ω	.1Ω	■ 5900Ω	■ 45K	0Ω		
V20	6AU8	0Ω	3.3meg	■ 220K	0Ω	.1Ω	0Ω	3.3meg	■ 16K	■ 16K
V21	6AN6	220Ω	18Ω	0Ω	.1Ω	■ 48K	■ 1000Ω	■ 1000Ω		
V22	6AL5	1.7meg	2.3meg	0Ω	.1Ω	1.7meg	0Ω	2.2meg		
V23	6BJ7	1.8meg	2.3meg	0Ω	.1Ω	0Ω	52K	9Ω	2.2meg	1.7meg
V24	6CM7	NC	NC	0Ω	0Ω	.1Ω	■ 2400Ω	2.6meg	NC	NC
V25	6CM7	■ 2100Ω	NC	0Ω	0Ω	.1Ω	■ 2200Ω	2.7meg	2.7meg	0Ω
V26	6X4	79Ω	NC	0Ω	.1Ω	TP	79Ω	¶ 20K		
V201	6BN4	0Ω	4.2meg	0Ω	.1Ω	† 9200Ω	0Ω	4.2meg		
V202	6CG8	10K	† 13K	0Ω	0Ω	.1Ω	† 7000Ω	† 16K	0Ω	224K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

▲ MEASURED FROM PIN 7 OF V2.

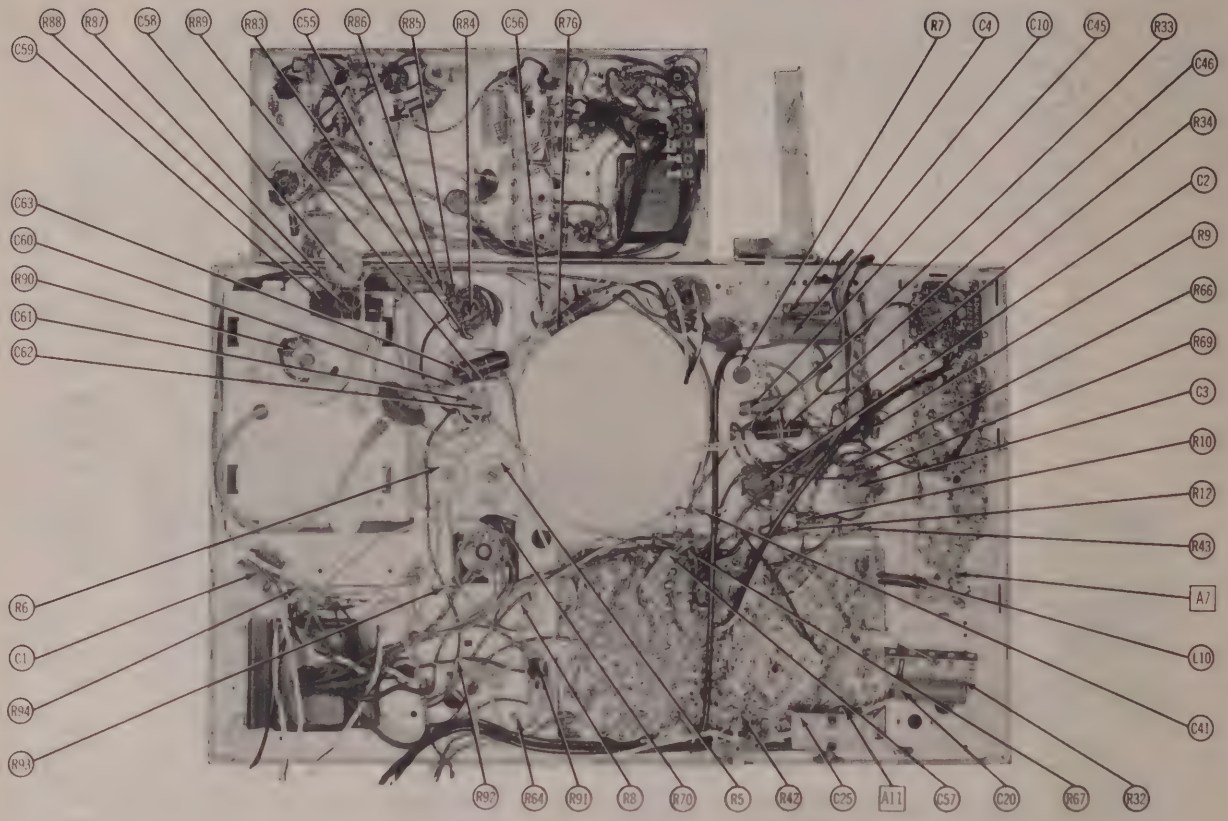
■ MEASURED FROM 275V SOURCE.

† MEASURED FROM 255V SOURCE.

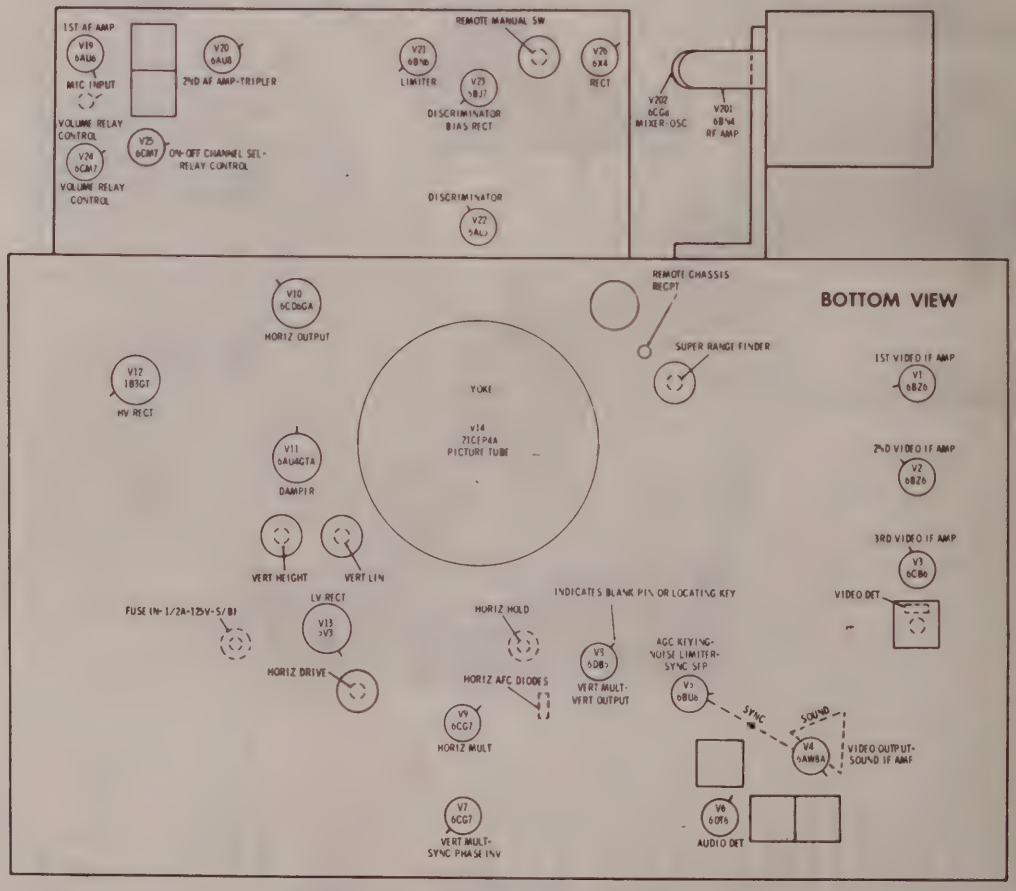
‡ MEASURED FROM PIN 3 OF V11.

†† MEASURED FROM 265V SOURCE.

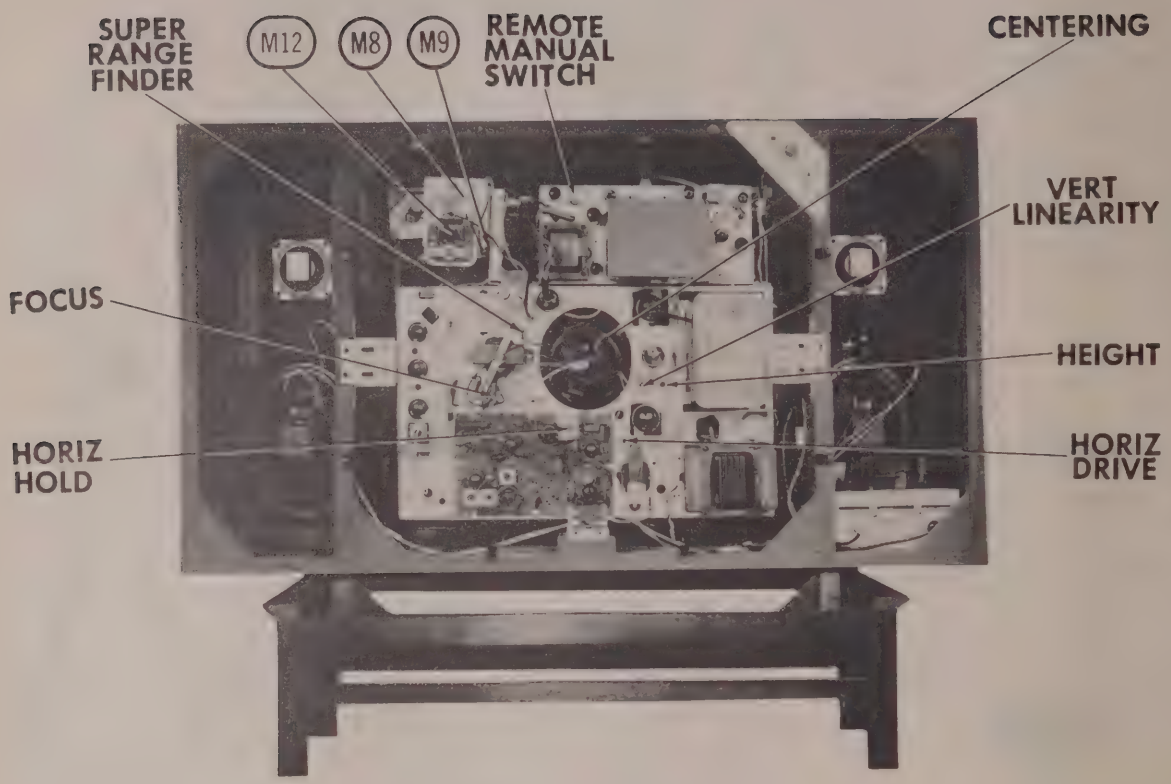
R4
R3
M10
R2
C33
C31
C32
T4
R48
C64
C1
R49
M2
T1
M7
C34
R1
L17
T2
C2
A
A8
A9
A10
A2
A1
A3
A4
C3
A5
A6
B



CHASSIS-BOTTOM VIEW



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Allow 15 minutes for receiver to warm-up. Tune in a station and set Brightness and Contrast for a normal picture.

Turn Horizontal Drive (R8) fully clockwise. Foldover and/or compression will appear near the center of the picture. Slowly turn the Horizontal Drive counterclockwise until the foldover or compression disappears. This point will provide maximum width and brightness.

Do not turn the Horizontal Drive too far counterclockwise as this shortens the life of the Horizontal Output Tube.

Reduce the Contrast to MINIMUM. If the picture loses horizontal sync, adjust the Horizontal Hold to the point where the picture remains in sync and vertical lines do not bend the top of the picture. If the Horizontal Hold requires adjustment, repeat the entire procedure.

PHOTOFACT* Folder
*TRADE MARK
EIA ELECTRONIC INDUSTRIES ASSOCIATION MEMBER

EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291 (Ch. 120382H, HC, 120383M, MC, 120390H, HC, 120391M, MC, 120386H, HC, 120387M, MC)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the front and 3 from the side.

2. Remove 6 metal screws holding the rear cover and tuner antenna leads. Remove the rear cover.

3. Remove the picture tube socket, Ion Trap, loosen yoke clamp, remove the width sleeve, HV line and speaker leads.

4. Remove 1 metal screw inside the cabinet holding the On-Off-Volume and Contrast control.

5. Remove 1 metal screw inside the cabinet holding the side control panel.

6. Remove 2 hex nuts holding the speaker.

7. Remove 3 metal screws holding the tuner.

8. Remove 4 chassis bolts from the bottom.

9. Remove the chassis and yoke.

MODEL 1276(CH.120382HC)

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS

TRADE NAME	Emerson	MODELS	CHASSIS
		1276	120382H, HC
		1277	120383M, MC
		1288	120390H, HC
		1289	120391M, MC
		1290	120386H, HC
		1291	120387M, MC
MANUFACTURER	Emerson Radio & Phonograph Corp., 14th. & Coles Sts., Jersey City 2, N.J.		
TYPE SET	Television Receiver		
TUBES	Fifteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 115 Watts, 1.2 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustments of the VHF Oscillator, it is necessary to remove the chassis from the cabinet. (See disassembly instructions.)

PICTURE TUBE SAFETY GLASS CLEANING

TABLE MODELS : Remove 3 screws holding the trim at the top edge of the safety glass. Tilt glass out at the top and lift up to remove.
CONSOLE MODELS: Remove the push-on type knobs at the top of the safety glass. Remove the screws holding the trim strip at the top of the glass. Tilt glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. Barkhausen or Snivets

To eliminate Barkhausen and/or Snivets from the picture, adjust the magnet clamped to the Horizontal Output tube for minimum interference. It may be necessary to remove the magnet and turn it over to get the best results. Check reception of all channels operating in the area to see that correct adjustment has been made.

B. Focus
Adjust the Ion Trap for the best focus consistent with maximum brightness.

C. Picture Stabilizer
Adjust picture to lock in with hold controls. If picture jitters, tears, etc., adjust Picture Stabilizer until stable. Readjust the hold controls and check operation on all channels in the area.

D. Width
The width may be varied by means of a metallic sleeve located between the Yoke and the Picture Tube neck. Adjust sleeve in or out of the yoke for a picture slightly larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Discriminator secondary (A6) located on top of chassis.

FUSES

One fuse is used for low voltage supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

NOTE: MODELS 1288, 1289, 1290 & 1291 USE AM TUNER INCLUDED IN THIS FOLDER. THESE MODELS ALSO USE EMERSON RECORD CHANGER #819117. FOR SERVICE INFORMATION ON THIS CHANGER SEE SIMILAR UNIT IN PHOTOFACT SET 353 — FOLDER 16.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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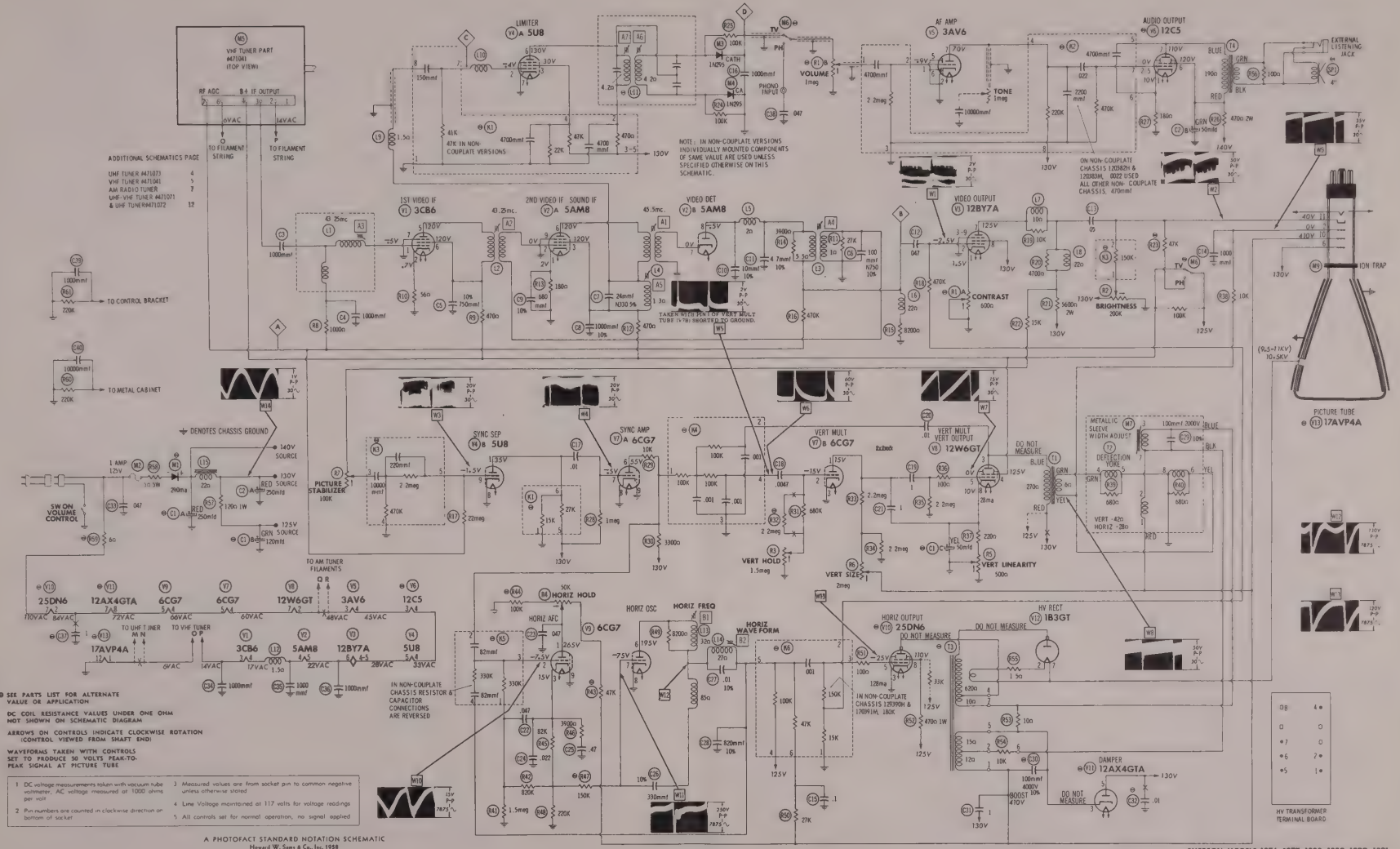
EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291 (Ch. 120382H, HC, 120383M, MC, 120390H, HC, 120391M, MC, 120386H, HC, 120387M, MC)

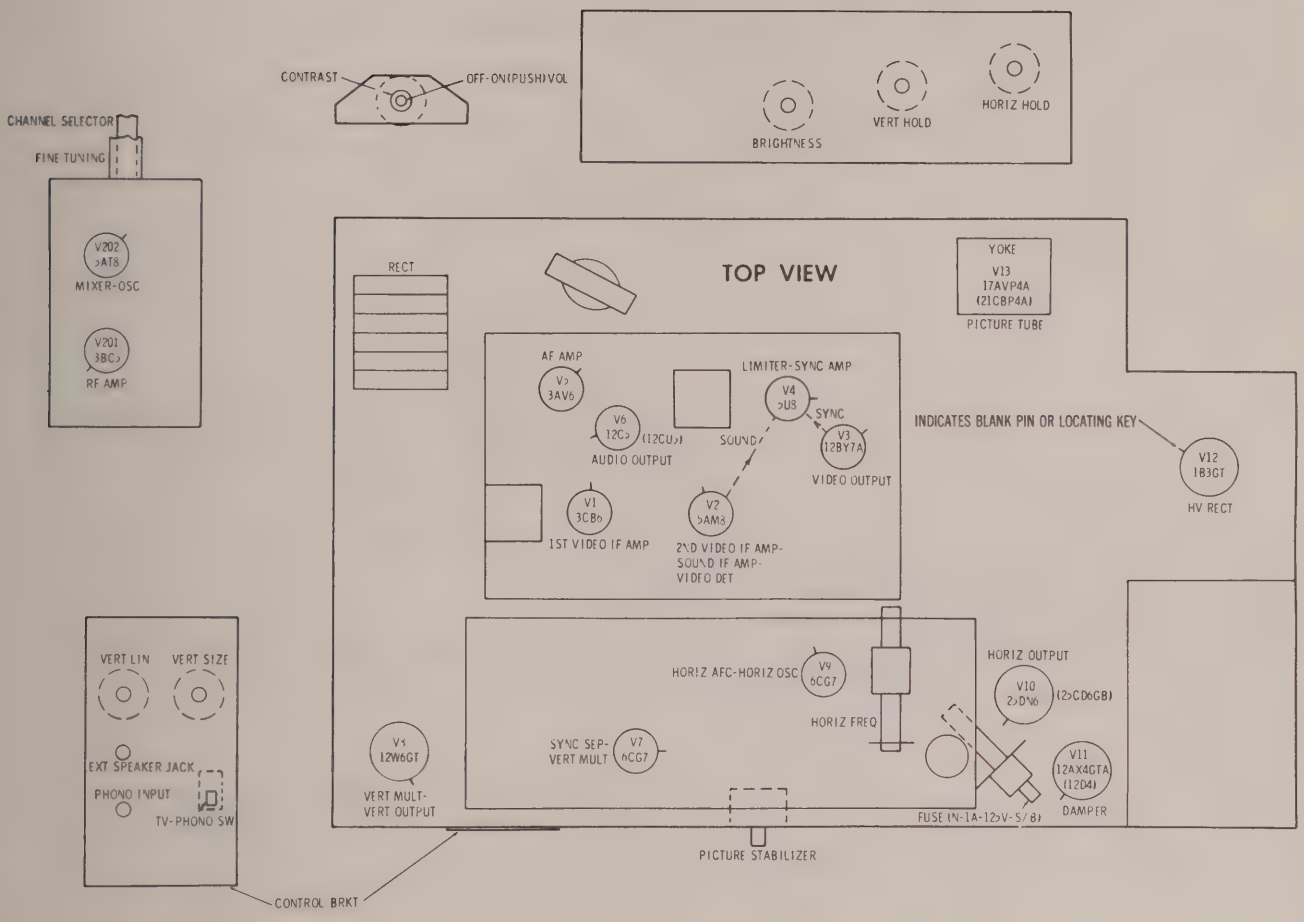
SET 406 FOLDER 2


VHF TUNER PART #471041 (TOP VIEW)
RF AGC
B+ IF OUTPUT
6VAC
16VAC
TO FILAMENT STRING
ADDITIONAL SCHEMATICS PAGE
UHF TUNER #471073 4
VHF TUNER #471041 5
AM RADIO TUNER 7
UHF-VHF TUNER #471071 & UHF TUNER #471072 12
LIMITER V4 A 5U8
1ST VIDEO IF V1 3CB6
2ND VIDEO IF V2 A 5AM8
SOUND IF V2 B 5AM8
VIDEO DET
AF AMP V5 3AV6
AUDIO OUTPUT V6 12C5
VOLUME 1meg
TONE 1meg
PHONO INPUT
EXTERNAL LISTENING JACK
VIDEO OUTPUT V3 12BY7A
CONTRAST 600Ω
BRIGHTNESS 200K
ION TRAP
PICTURE TUBE V13 17AVP4A
(9.5-11KV) 10-5KV
NOTE: IN NON-COUPLATE VERSIONS INDIVIDUALLY MOUNTED COMPONENTS OF SAME VALUE ARE USED UNLESS SPECIFIED OTHERWISE ON THIS SCHEMATIC.
ON NON-COUPLATE CHASSIS 120382H & 120383M, .022 USED ALL OTHER NON-COUPLATE CHASSIS, 470mmf
TAKE-OFF POINT FOR VERT MULT TUBE (V7B) SHORTED TO GROUND.
TO CONTROL BRACKET
TO METAL CABINET
DENOTES CHASSIS GROUND
140V SOURCE
130V SOURCE
125V SOURCE
SW ON VOLUME CONTROL
PICTURE STABILIZER 100K
SYNC SEP V4 B 5U8
SYNC AMP V7 A 6CG7
VERT MULT V7 B 6CG7
VERT MULT VERT OUTPUT V8 12W6GT
DO NOT MEASURE
METALLIC SLEEVE WIDTH ADJUST
DEFLECTION YOKE
VERT HOLD 1.5meg
VERT SIZE 2meg
VERT LINEARITY 500Ω
TO AM TUNER FILAMENTS
OR
25DN6 12AX4GTA 6CG7 6CG7 12W6GT 3AV6 12C5
110VAC 84VAC 72VAC 66VAC 60VAC 48VAC 45VAC
TO UHF TUNER IN
TO VHF TUNER
17AVP4A 3CB6 5AM8 12BY7A 5U8
0VAC 14VAC 12VAC 22VAC 28VAC 33VAC
HORIZ HOLD 50K
HORIZ AFC
V9 6CG7
HORIZ OSC
HORIZ FREQ
HORIZ WAVE FORM
HORIZ OUTPUT V10 25DN6
HV RECT V12 1B3GT
DAMPER V11 12AX4GTA
BOOST 410V
HV TRANSFORMER TERMINAL BOARD
IN NON-COUPLATE CHASSIS RESISTOR & CAPACITOR CONNECTIONS ARE REVERSED
IN NON-COUPLATE CHASSIS 120390H & 120391M, 180K
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291 (Ch. 120382H, HC, 120383M, MC)

EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291 (Ch. 120382H, HC, 120383M, MC, 120390H, HC, 120391M, MC, 120386H, HC, 120387M, MC)

FOLDER 2

TUBE PLACEMENT CHART



EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291
(Ch. 120382H, HC, 120383M, MC, 120390H, HC,
120391M, MC, 120386H, HC, 120387M, MC)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

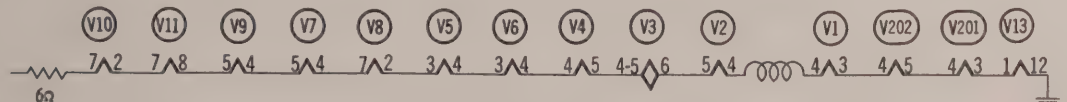
POWER SUPPLY FAILURE
No raster, no sound Fuse (M2), Rectifier (M1)

SWEEP FAILURE
No raster, has sound V9, V10, V11, V12, V13
No vertical deflection V7, V8
Poor vert. linearity or foldover V7, V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, M1
Vert. off freq. V7, V8
Horiz. off freq. V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V13
Has pic, no sound V2, V4, V5, V6

SYNC FAILURE
No vert. sync V4, V7
No horiz. sync V4, V7, V9
No vert. or horiz. sync V4, V7

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓐ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Preset Mixer Plate Trimmer fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not used	45.5MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe to point Ⓑ. Low side to chassis. (Across Video Det. Load).	A1	Adjust for maximum deflection.
2.	"	"	"	43.25MC	"	"	A2, A3 & Mixer Plate Coil	"
3.	"	"	44.0MC (10MC Swp)	45.75MC	"	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across Video Det. Load).	Mixer Plate Trimmer	Use only enough sweep generator output to provide a usable pattern on scope. Check for response curve similar to Fig. 1. Adjust Mixer Plate Trimmer to place marker at 40%.

SOUND IF ALIGNMENT

Loosely couple the antenna to the antenna terminals of the receiver and tune in a weak station.
Connect the DC probe of the VTVM to point Ⓒ . Common to chassis.
Adjust A4 and A5 for maximum negative reading on the VTVM.
Move the DC probe to point Ⓓ . Detune A6 for maximum negative reading on VTVM.
Adjust A7 for maximum negative reading on VTVM.
Readjust A6 towards original position of slug for MINIMUM voltage reading on VTVM. Check audio; if distorted, repeat entire procedure.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

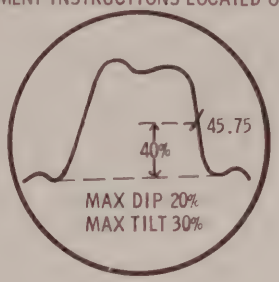
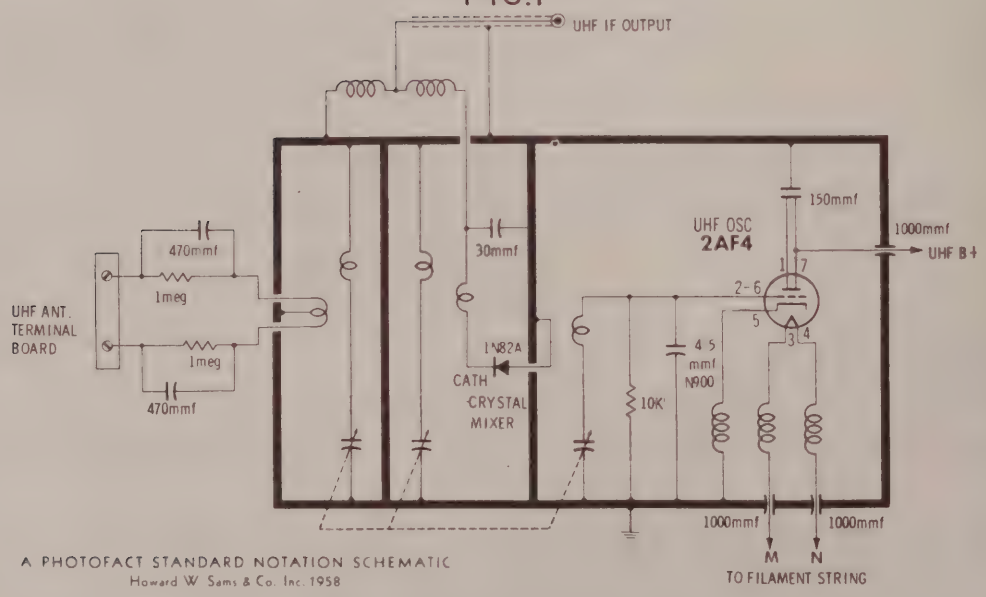


FIG. 1



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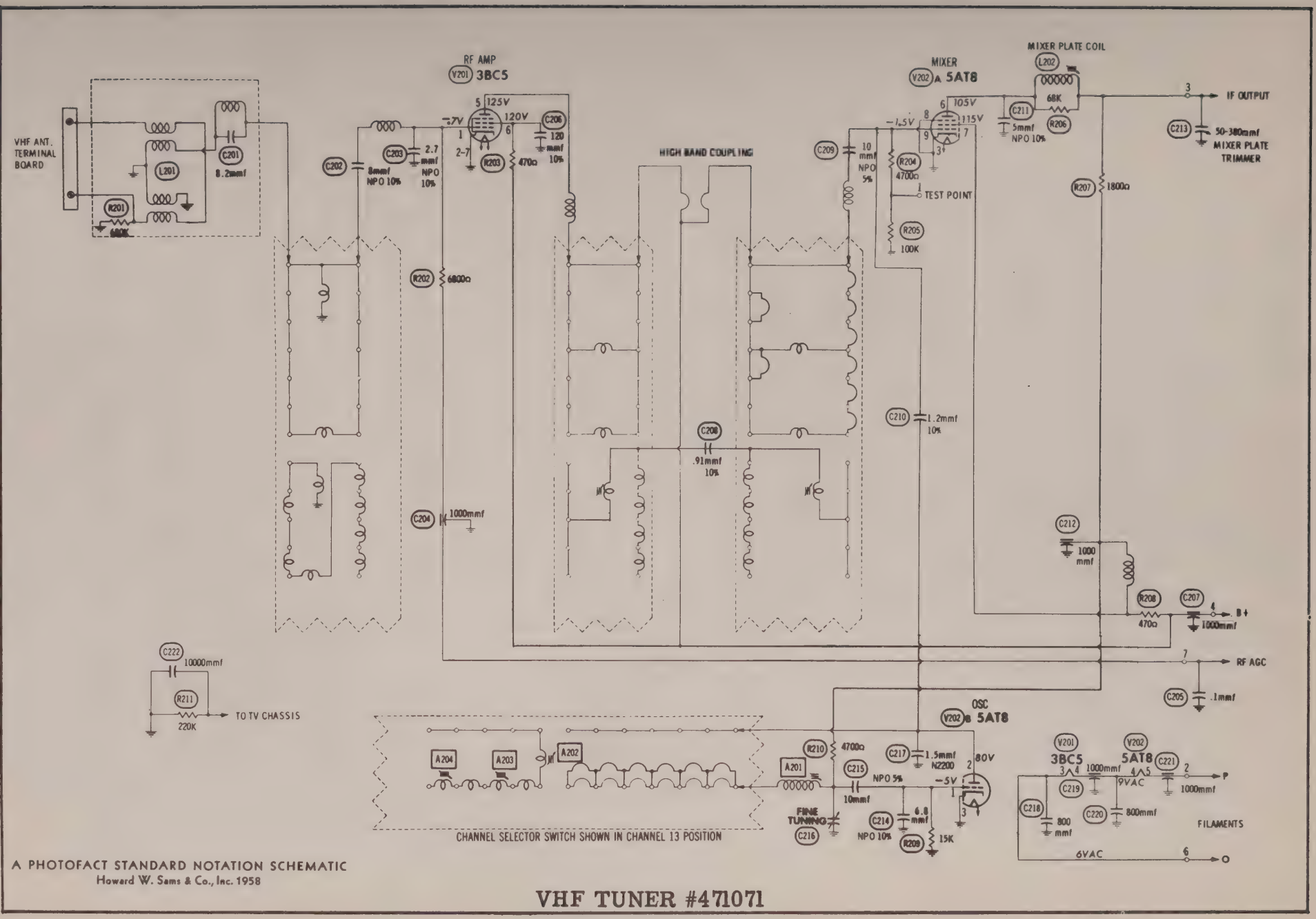
Howard W. Sams & Co. Inc. 1958

UHF TUNER 471073



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #471071

EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291
(CH. 120382H, HC, 120383M, MC, 120390H, HC,
120391M, MC, 120386H, HC, 12038 7M, MC)

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	3BC5	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5AT8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	8.2			NPO-DI 8.2	MD-8R2	L10V8			
C202	8			NPO-DI 8.2		C10V8C			NPO 10%
C203	2.7								NPO 10%
C204	1000			EF-001	MFT-1000			503C-D1	
C205	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C206	120			NPO-DI 120	DD-121	L10T12		5TCC-T12	10%
C207	1000			EF-001	MFT-1000			503C-D1	
C208	.91								10%
C209	10			NPO-DI 10	DTZ-10	C10Q1C			NPO 5%
C210	1.2								10%
C211	5			NPO-DI 5		C10V5C	ZT-555		NPO 10%
C212	1000			EF-001	MFT-1000			503C-D1	
C213	50-380								
C214	6.8			NPO-DI 6.8	DTZ-6R8	C10V68C	ZT-5568	5TCCB-V68	NPO 10%
C215	10			NPO-DI 10	DTZ-10	C10Q1C			NPO 5%
C216									
C217	1.5								N2200
C218	800			BPD-0008	DD-801	L10T8		5GA-T8	
C219	1000			EF-001	MFT-1000			503C-D1	
C220	800			BPD-0008	DD-801	L10T8		5GA-T8	
C221	1000			EF-001	MFT-1000			503C-D1	
C222	10000			1467-01	DD-103	1D3S1	MC475	1FM-11	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R201	680K			
R202	6800Ω			
R203	470Ω			
R204	4700Ω			
R205	100K			
R206	68K			

ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R207	1800Ω			
R208	470Ω			
R209	15K			
R210	4700Ω			
R211	220K			

COILS (RF-IF)

ITEM No.	USE	EMERSON PART No.	NOTES
L201	Ant. Input Assy.	962159	Includes coils, caps, resistor, and rear plate

ITEM No.	USE	EMERSON PART No.	NOTES
L202	Mixer Plate Coil	962167	

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS #471041 & #471071

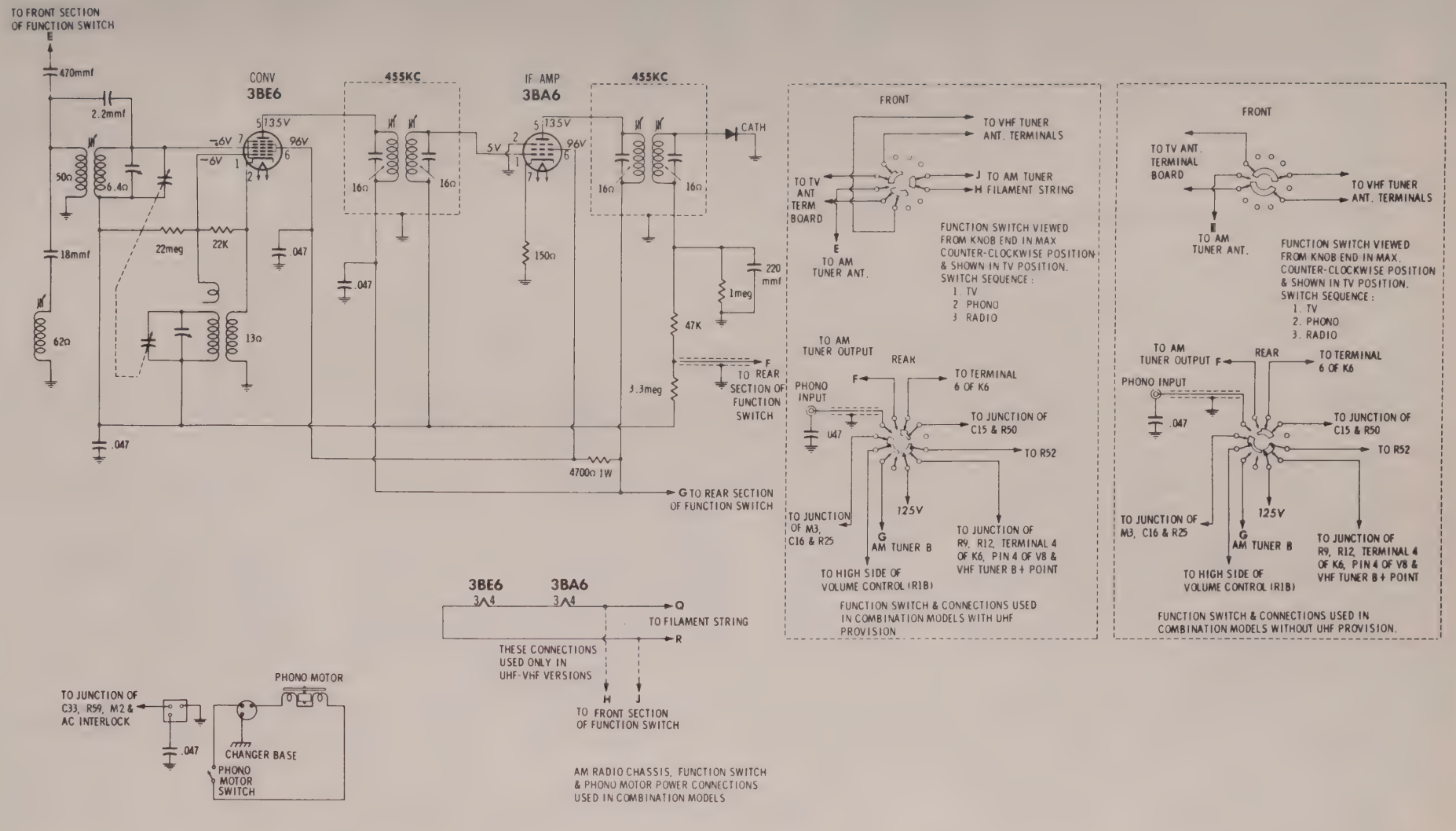
USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Channel 13 oscillator adjustment slug (A201) is also used for adjusting the other high band channels (12 thru 7). Channel 6 oscillator adjustment slug (A202) is also adjusted for channel 5. Channel 4 oscillator adjustment (A203) is also adjusted for channel 3. Channel 2 oscillator slug (A204) is used only for channel 2.
Turn the set on and tune in the highest high band channel and adjust controls for normal operation. Set Fine Tuning to the center of its range. Adjust A201 for best picture and sound. Switch to next high band channel. If necessary to adjust, do so by bending coil loop appearing at the hole to left of tuner shaft for best picture and sound.
Switch Channel Selector to the highest low band channel (6 thru 2) operating in the area. Adjust proper slug for best picture and sound. If channel 5 or 3 needs adjusting, it will be necessary to switch to the next higher channel, adjust slug SLIGHTLY, then switch back to the channel needing adjustment and check picture. Repeat until proper results are obtained. Repeat procedure until all channels operating in the area have been properly adjusted.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

AM RADIO SCHEMATIC

EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291
(Ch. 120382H, MC, 120383M, MC, 120390H, HC, 120391M, MC, 120386H, HC, 120387M, MC)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	3CB6	
V2	2nd Video IF Amp - Video Det., Sound IF Amp	5AM8	
V3	Video Output	12BY7A	
V4	Limiter-Sync Amp	5U8	
V5	AF Amp	3AV6	
V6	Audio Output	12C5	12CU5 *

* Alternate

ITEM No	USE	TYPE	NOTES
V7	Sync Sep.-Vert. Mult.	6CG7	
V8	Vert. Mult.-Vert. Output	12W6GT	
V9	Horiz. AFC-Horiz. Osc.	6CG7	
V10	Horiz. Output	25GN6	25CD6GB*
V11	Damper	12AX4GTA	12D4 ①
V12	HV Rect	1B3GT	

① Used in Ch. 120390H, HC, 391M, MC.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	EMERSON PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V13	17AVP4A 21CBP4A	17AVP4A, 17ATP4A ①	17AVP4A-A, 17ATP4-A ② 21CBP4-A ③	17ATP4A/ 17AVP4A ② 21CBP4/ 21CBP4A ③	① "Aluminized" ② "Silverama" ③ ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	250	150	925435 ①	PR3-043	XC0127	WD251 MC496		+0-090 MTD-1550	R1996 *
B	120	150							
C	50	25							
C2A	250	150	925434	PR2-130	XC0126	WD251		8-110 MTD-1550	R1995 *
B	50	150							

① Alternate Part #925436. Part #925435 used in Ch. 130390H, HC, 391M, MC.
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
C3	1000		928933	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C4	1000		928933	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C5	750		928964							10%
C6	100		928897	N750-DI 100	DTN-100	C10TIU	NT-531	5TCU-TI		N750 10%
C7	24		928960							N330 5%
C8	1000		928931							10%
C9	680		928909		MD-681					10%
C10	10		928216	NPO-SI 10	TCZ-10	CTA6QIC	ZT-541	5TCC-QI		10%
C11	4.7		928212	NPO-SI 4.7	TCZ-4R7	CTA6V4TC	ZT-5547	5TCCB-V47		10%
C12	.047	200	924354	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C13	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5		
C14	1000		928933	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C15	.1	400	924515	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1		
C16	1000		928933	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C17	.01	600	922514	P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1		
C18	.0047	400	924453	P488N-047	D6-472	CUB6D47	GEM-6247	6TM-D47		
C19	.1	400	924515	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1		
C20	.01	400	924533	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1		
C21	.1	400	924515	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1		
C22	.047	200	924354	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C23	.047	400	923554	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47		
C24	.022	400	923524	P488N-023		CUB4S22	GEM-4123	4TM-S23		
C25	47	200	923355	P288N-47		CUB2P47	GEM-2047	2TM-P47		
C26	330		911167	1469-00033	MD-331	5R5T33		MS-333		10%
C27	.01	600	924614				GEM-1611			10%
C28	820		911328	1469-00082		1R5T82		MS-382		10%
C29	100	2000	928932							10%
C30	100	4000	928961							① 10%
C31	.1	400	924515	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1		
C32	.01	400	924533	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1		②
C33	.047	600	922208	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47		
C34	1000		928919	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C35	1000		928919	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C36	1000		928919	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C37	.1	200	923315	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1		②
C38	.047	400	923554	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47		
C39	1000		928927	BPD-001	DD-102	BYA6DI	DC52I	5HK-DI		
C40	10000	400	922201	1467-01	DD-103		MC475			

① Ch. 130390-HC, H, 391-MC, M use 82mmf ④ 4000V in this application (Part #928961).
② Not used in some versions.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	600Ω	½	[redacted]				UE1228	Contrast - Note 1
B	1meg	½					Not Req.	Volume
C	Switch						Not Req.	
R2A	200K	½	390452	B-46	A47-200K-S	QII-129	U43	Brightness
B	Shaft		Not Req.	FS-3	Not Req.	Not Req.	Not Req.	
R3A	1.5meg	½	390498	B-742	A47-1.5meg -S	QII-138	U155	Vert. Hold
B	Shaft		Not Req.	FS-3	Not Req.	Not Req.	Not Req.	
R4A	50K	½	390454	B-31	A47-50K-S	QII-123	U151	Horiz. Hold
B	Shaft		Not Req.	FS-3	Not Req.	Not Req.	Not Req.	
R5A	500Ω	½	390341	AB-4	A47-500-S	QII-103	PTA52L	Vert. Lin.
B	Shaft		Not Req.	AK-19	TQ	Not Req.	Not Req.	
R6A	2meg	½	390501	AB-75	A47-2meg-S	QII-139	PTA36L	Vert. Size
B	Shaft		Not Req.	AK-19	TQ	Not Req.	Not Req.	
R7A	100K	½	390455	AB-40	A47-100K-S	QII-128	PTA15L	Pix Stabilizer
B	Shaft		Not Req.	AK-19	TQ	Not Req.	Not Req.	

Note 1. Used in Ch. 130386H, HC, Ch. 130387M, MC use Part #390457. Part #390490 used in Ch. 120382H, HC, 383M, MC, 390H, HC, 391M, MC.

PARTS LIST AND DESCRIPTIONS

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R8	1000Ω		350492	
R9	470Ω		350412	
R10	56Ω		340192	
R11	27K		340832	
R12	470Ω		350412	
R13	180Ω		340312	
R14	3900Ω		340832	
R15	8200Ω		340712	
R16	470K		341142	
R17	22meg		341532	
R18	470K		351132	
R19	10K		340732	
R20	4700Ω		340652	
R21	5600Ω	2	397102	
R22	15K		340772	
R23	47K		350892	Note 1
R24	100K		340972	
R25	100K		340972	
R26	470Ω	2	790412	
R27	180Ω		340312	
R28	1meg		351212	
R29	10K		340732	
R30	3300Ω		340812	
R31	680K		341172	
R32	2.2meg		351292	Note 2
R33	2.2meg		351292	
R34	2.2meg		351292	

ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R35	2.2meg		351292	
R36	100Ω		350252	
R37	2200Ω		340332	
R38	10K		340732	
R39	680Ω		350432	
R40	680Ω		350432	
R41	1.5meg		341252	
R42	820K		341192	
R43	47K		340892	Note 3
R44	100K		340972	Note 4
R45	82K		340952	
R46	3900Ω		340832	
R47	150K		341012	Note 5
R48	220K		341052	
R49	8200Ω		340712	
R50	27K		340832	
R51	100Ω		350252	
R52	470Ω	1	370412	
R53	10Ω		340012	
R54	10K		340732	
R55	1.5Ω		394142	
R56	100Ω		350252	
R57	120Ω	1	370272	
R58	5Ω	5	394158	
R59	6Ω		397118	Note 6
R60	220K		351057	
R61	220K		351057	

Note 1. Not used in Ch. 130386H, HC, 387M, MC, 390H, HC, 391M, MC.
Note 2. Not used in some versions.
Note 3. Some versions may use 100K in this application (Part #340972).
Note 4. Some versions may use 150K in this application (Part #340102).
Note 5. Ch. 130386H, HC, 387M, MC, 390H, HC, 391M, MC use 330K in this application (Part #341092).
Note 6. UHF versions use 1Ω in this application (Part #397103).

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		EMERSON PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T1	Vert. Output	T38152	21900 ①	A-2822 ②			26875 ①		
T2A	Yoke-Horiz. (20MH)	708332	DF-607	MDF-92	Y90F19/43	DY-16A	Y-16	Y-41 &	
B	(900)-Vert. (38MH)		③④	③④	③④	③④	②④	NW5 ④	
M6	Rear Cover & Centering Device	708333							
T3	Horiz. Output	T38138A		HVO-87 *	X136 *				
	Alt. Horiz. Output	T38158							

① Use 8 to 1 turns ratio.
② Drill new mounting hole(s).
③ Cut and form a piece of .010 gauge fish paper inside the yoke itself and support with an acetate cement to provide an insulation between the width sleeve and the yoke proper; use original damping network, if necessary.
④ Use original rear cover and centering device and width sleeve.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
4		4	4			
7		8	8			
5		7	7			
2		2	2			
1		1	1			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	EMERSON PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T4	2300Ω	3-4Ω	734181	22101 ①	A-3025 ②	AU-605 ①	A-3332 ②	26853 ①	S-12X ①	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMERSON PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	180168 ①	4A07	① Used in Models 1276, 1277.
	4"	PM		180155 ②		② Two used in Models 1288, 1289.
	6"	PM		180161 ③		③ Two used in Models 1290, 1291.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		EMERSON PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	1st. Video IF	720304					
L2	2nd. Video IF	720305					
L3	1st. Sound IF	720305					
L4A	3rd. Video IF	720296					
B	2nd. Sound IF						
L5	RF Choke	708312		19-1005	BC-586	4612	11 Microhenries
L6	Shunt Peaking Coil	708274		19-3660	TV-206	6148	660 Microhenries
L7	Series Peaking Coil	708272		19-3300	TV-190	6132	330 Microhenries
L8	Shunt Peaking Coil	708274		19-3660	TV-206	6148	660 Microhenries
L9	RF Choke	708312		19-1005	BC-586	4612	11 Microhenries
L10	RF Choke	708271		19-1003	BC-564	4606	4.6 Microhenries
L11	Discriminator	708276					
L12	Fil. Choke	705023		19-1001	BC-582	4604	1.5 Microhenries ①

① IRC Part #CLA.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI.	SEC.	EMERSON PART No.	Meissner PART No	Merit PART No.	Miller PART No.	Ram PART No	Thordorson PART No	
L13	1170 *		716177		TV-165	6211 ▲		HS-7	Horiz. Frequency. * Tapped @ 65Ω ▲ Enlarge mtg. hole.
L14	27Ω		708275						Horiz. Waveform.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES	INDUCTANCE @ CURRENT 1000 ~\/	EMERSON PART No	Halldorson PART No	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No
L15	260A	22Ω	57 Hy	737037						

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	EMERSON PART No.	REPLACEMENT DATA
K1	Sync & Sound	4700mmf, 4700mmf, 470Ω, 15K, 22K, 27K, 43K, 47K	923051 ①	
K2	Audio Coupling	2200mmf, 4700mmf, 4700mmf, 22000mmf, 220K, 470K, 2.2meg	923052	
K3	Sync Coupling	220mmf , 10000mmf, 150K, 470K, 2.2meg	923053	
K4	Vert. Integrator & Feedback	1000mmf, 1000mmf, 1000mmf, 100K, 100K, 100K	923056	
K5	Horiz. AFC Coupling	82mmf, 82mmf, 330K, 330K	923055 ②	
K6	Horiz. Coupling	1000mmf, 15K, 47K, 100K, 150K	923054	

NOTE : Above component combination units used in chassis with suffix C. Other chassis use individual parts.
① In chassis using individual parts the 43K resistor is changed to 47K.
② In chassis using individual parts the 82mmf capacitor and 330K resistor coupling the feedback signal are reversed in connections.

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	EMERSON PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.290A	817047 ① ③	1090A ②	1N2008 ③	RF3008L ② 3F5I ④	300 ② M500 ④	

① Ch. 120391M, MC use silicon rectifier Part #817068 in this application and output voltages will be approximately 10% higher.
② Selenium Type. ③ Germanium Type. ④ Silicon Type.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EMERSON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	N	1A-125V S/B	808014		313001 (N-1A-125V-B/B)	34601	NI	HN 3/4 to 1 1/4

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		EMERSON PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N295	[redacted]	1N80	1N295	Discriminator (Pigtail)
M4	1N295	817018	1N80	1N295	Discriminator (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M5	Tuner	471041	VHF, Ch. 120382H, HC, 386H, HC, 390H, HC
	Tuner	471071	UHF-VHF, Ch. 120383M, MC, 387M, MC, 391M, MC
	Tuner	471072	UHF, Ch. 120383M, MC, 387M, MC
	Tuner	471073	UHF, Ch. 120391M, MC
M6	Switch	510088	Phono-TV (Slide Type) Ch. 120382H, HC, 383M, MC
	Switch	510128	Radio-Phono-TV(Rotary Wafer) Ch. 120386H, HC, 387M, MC, 390H, HC, 391M, MC
M7	Width Sleeve	460941	
M8	Centering Device	708333	Includes Yoke Rear Cover
[redacted]	Ion Trap	708316	
[redacted]	Barkhausen Magnet	708234	
	Printed Board	471047	Video IF, Video, Sound
	Printed Board	471046	Horiz. & Vert. Osc.

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

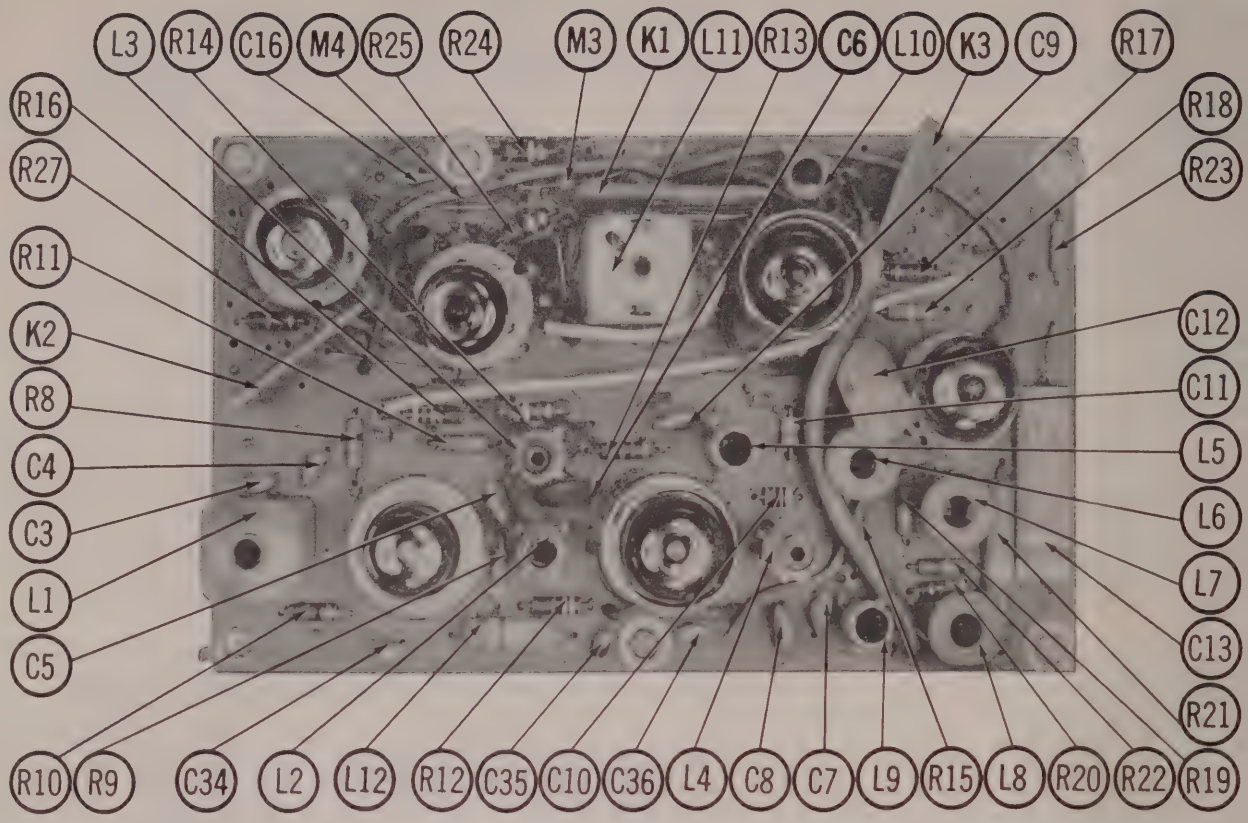
NAME	PART NO	DESCRIPTION
Safety Glass	520262	Models 1276, 1277, 1290, 1291
Safety Glass	520258	Models 1288, 1289
Mask	460938A	Models 1276, 1277, 1290, 1291
Mask	400914A	Models 1288, 1289

WIRING DATA

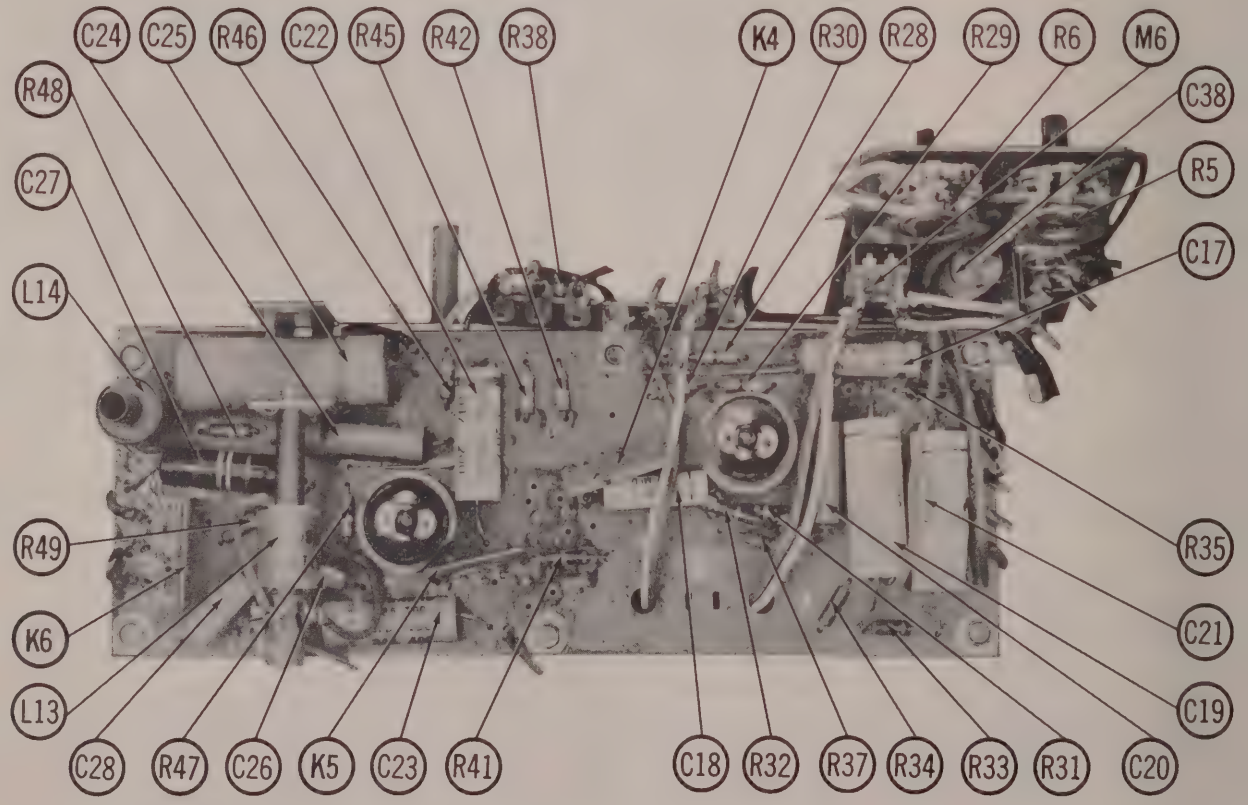
High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8674
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

EMERSON MODELS 1276, 1277, 1288, 1289, 1290, 1291 (Ch. 120382H, HC, 120383M, MC, 120390H, HC, 120391M, MC, 120386H, HC, 120387M, MC)

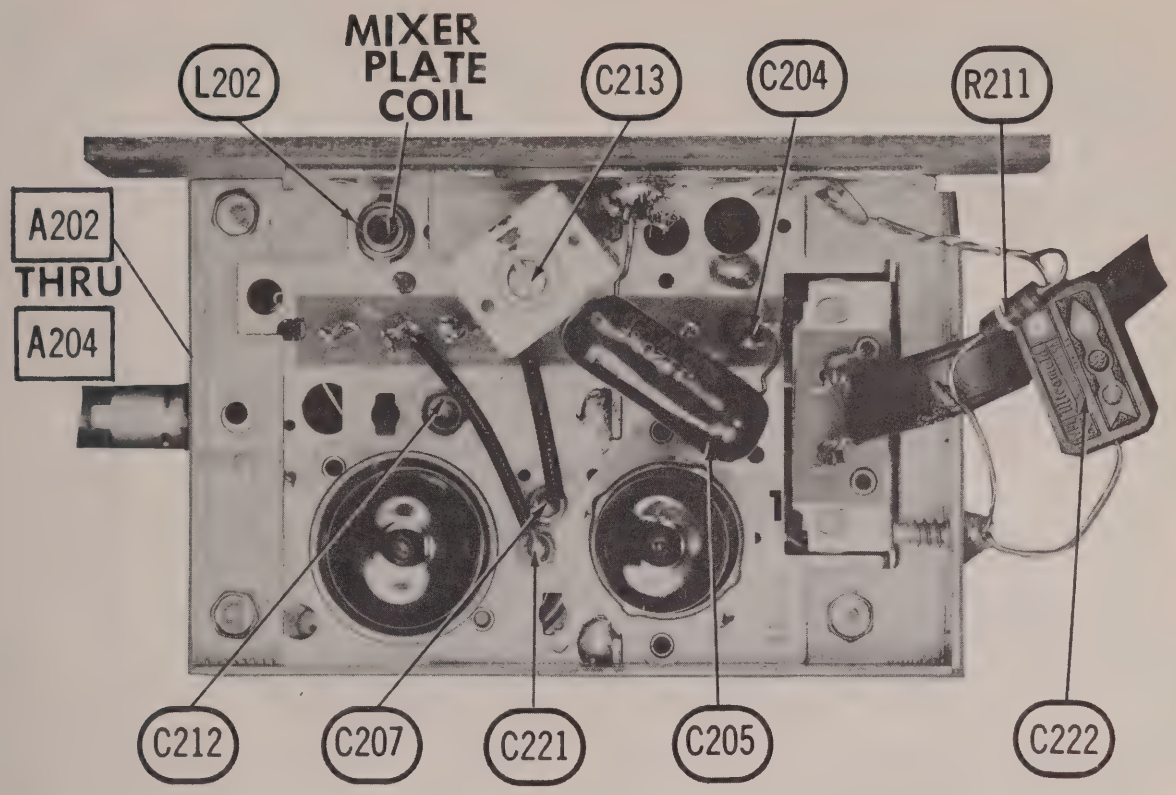
FOLDER 2



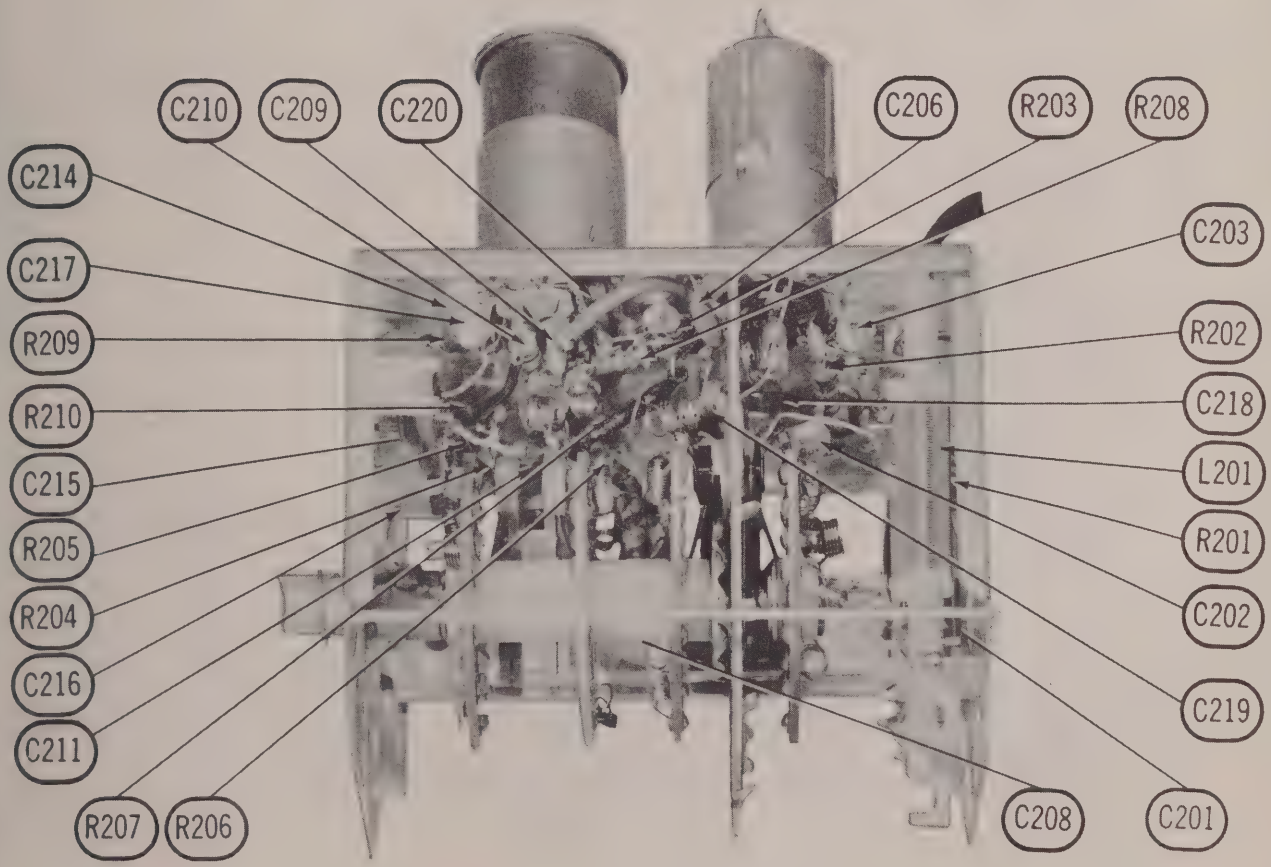
MAIN PRINTED BOARD



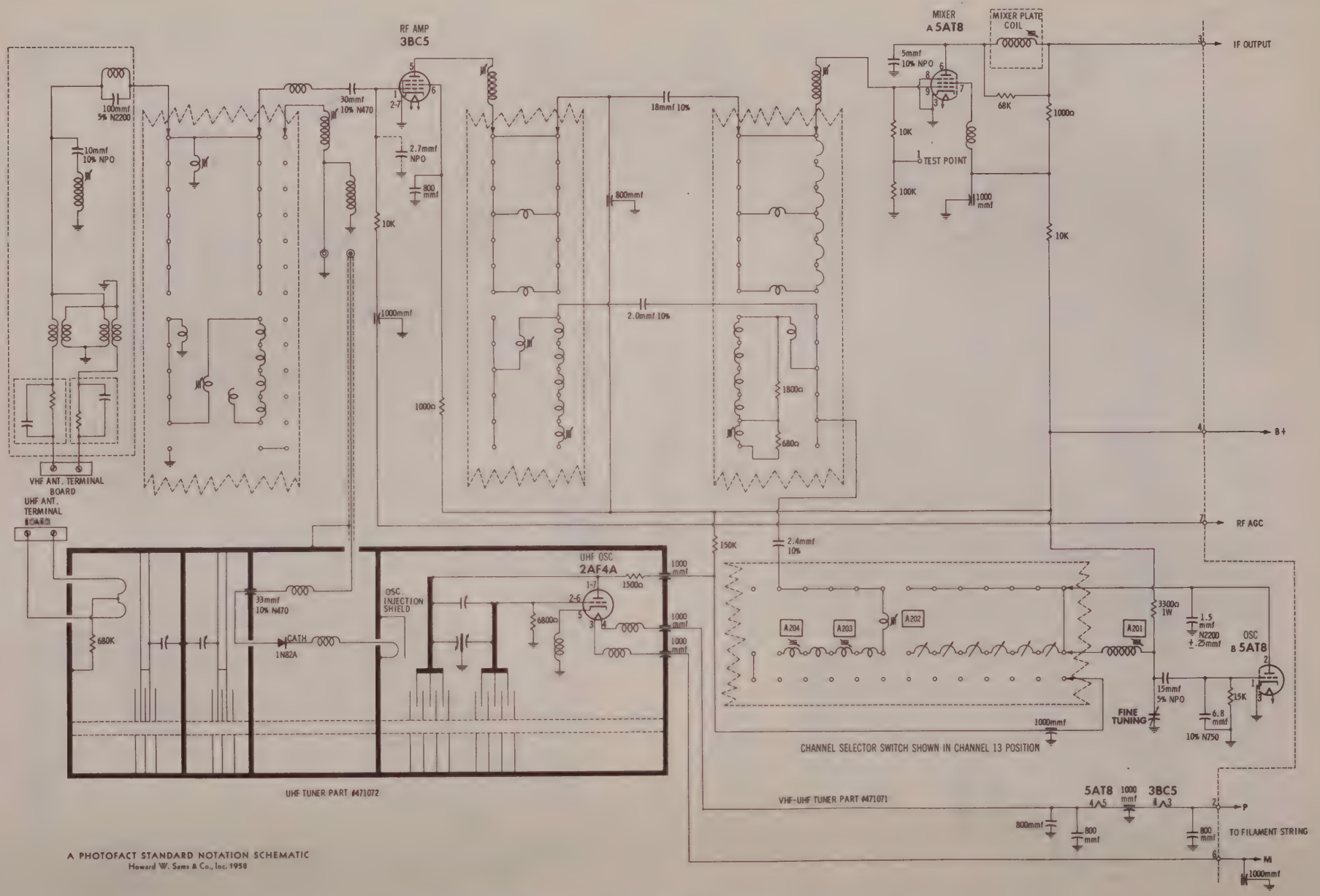
SWEEP PRINTED BOARD



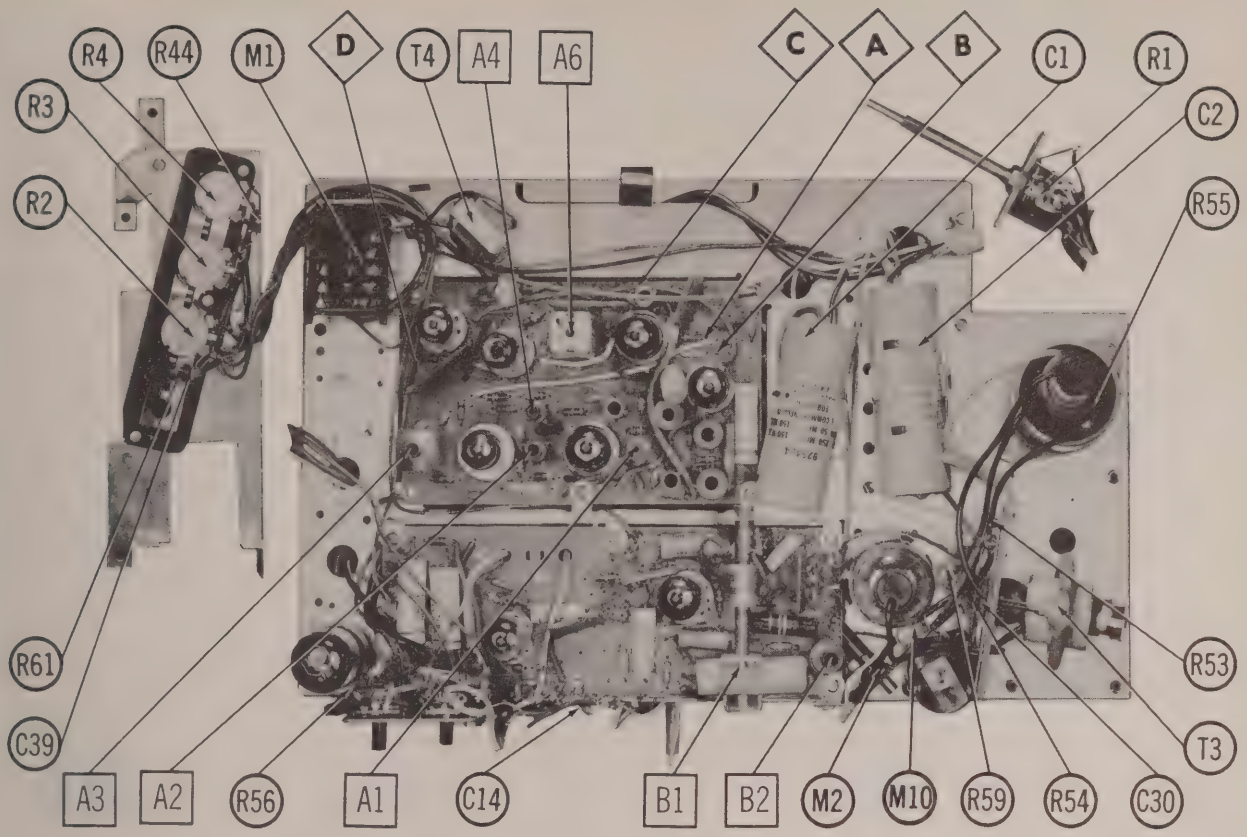
RF TUNER-TOP VIEW



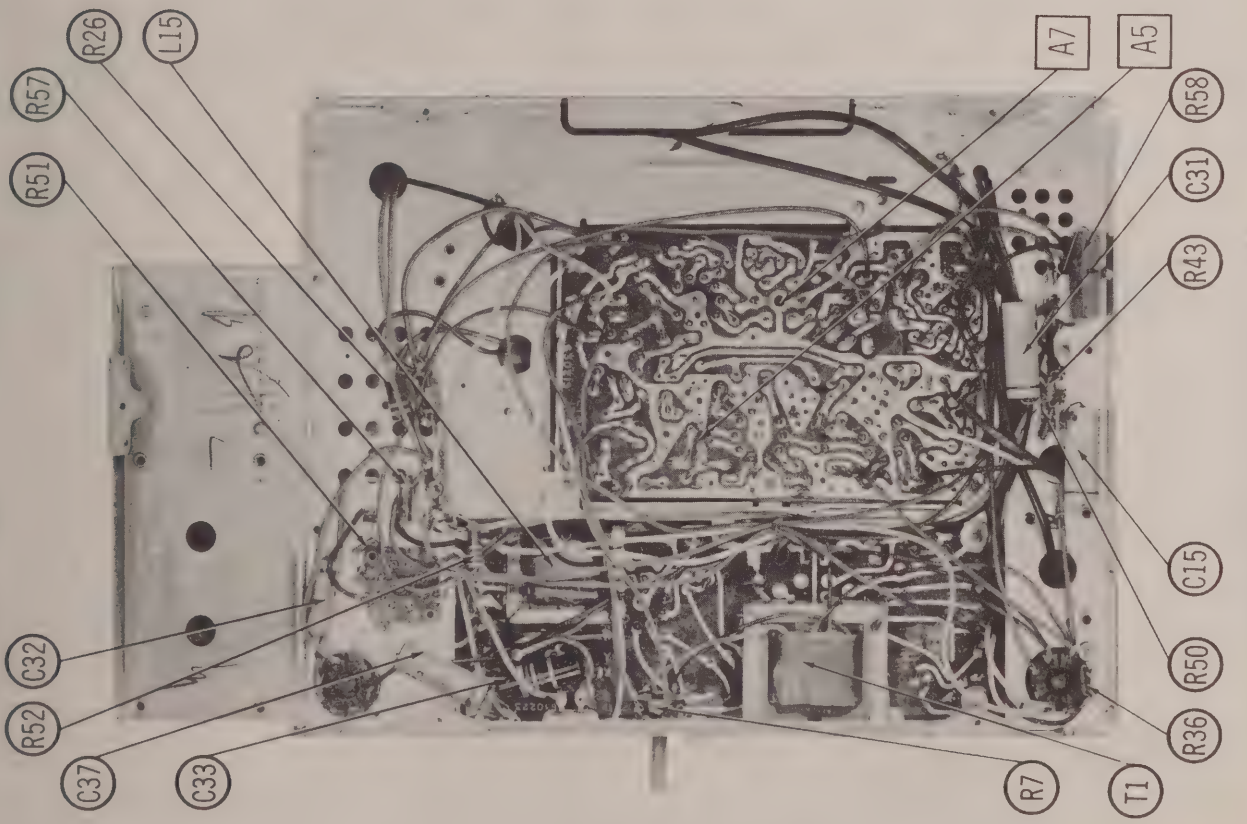
RF TUNER-RIGHT SIDE



UHF TUNER #471072 & UHF-VHF TUNER #471071



CHASSIS TOP VIEW

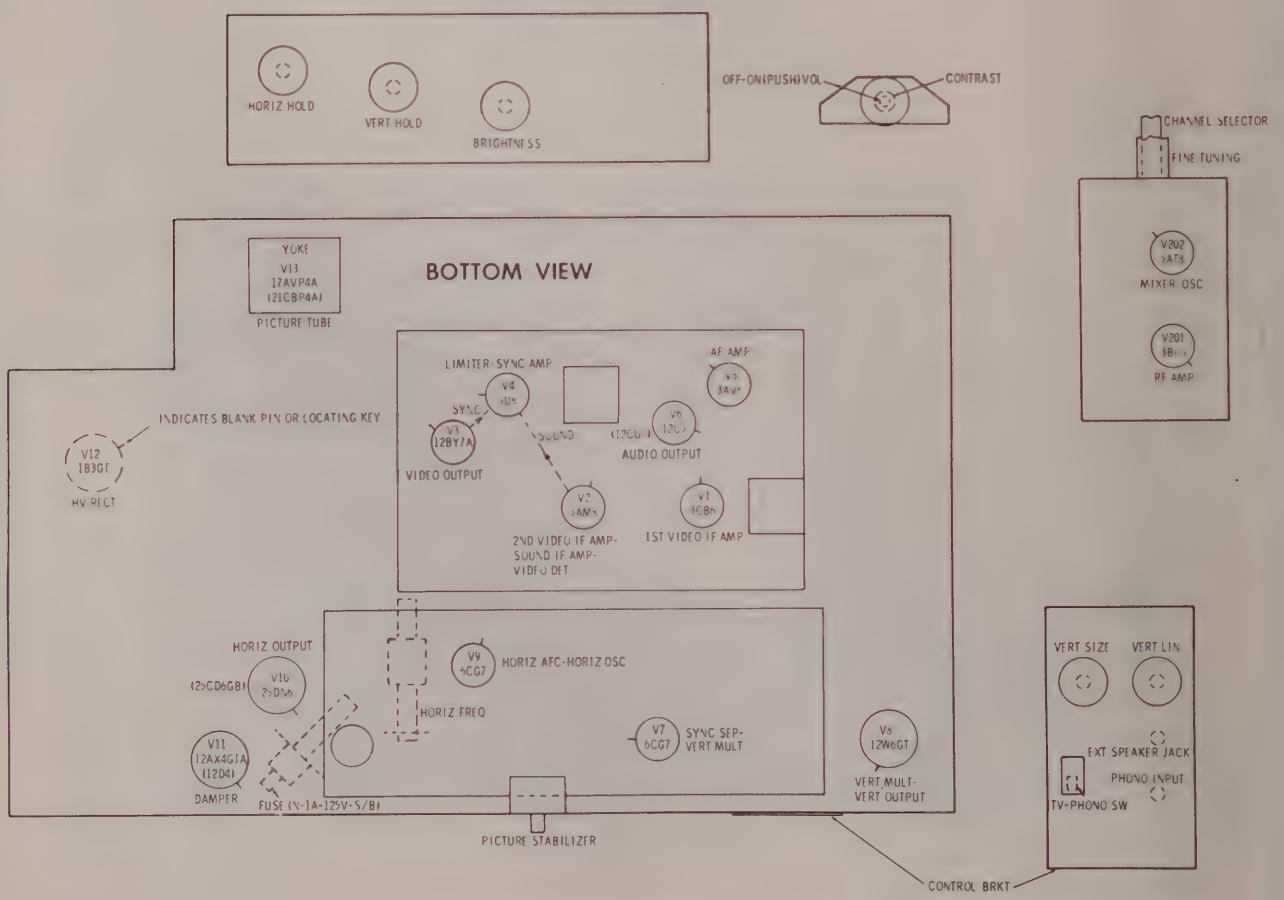


CHASSIS BOTTOM VIEW

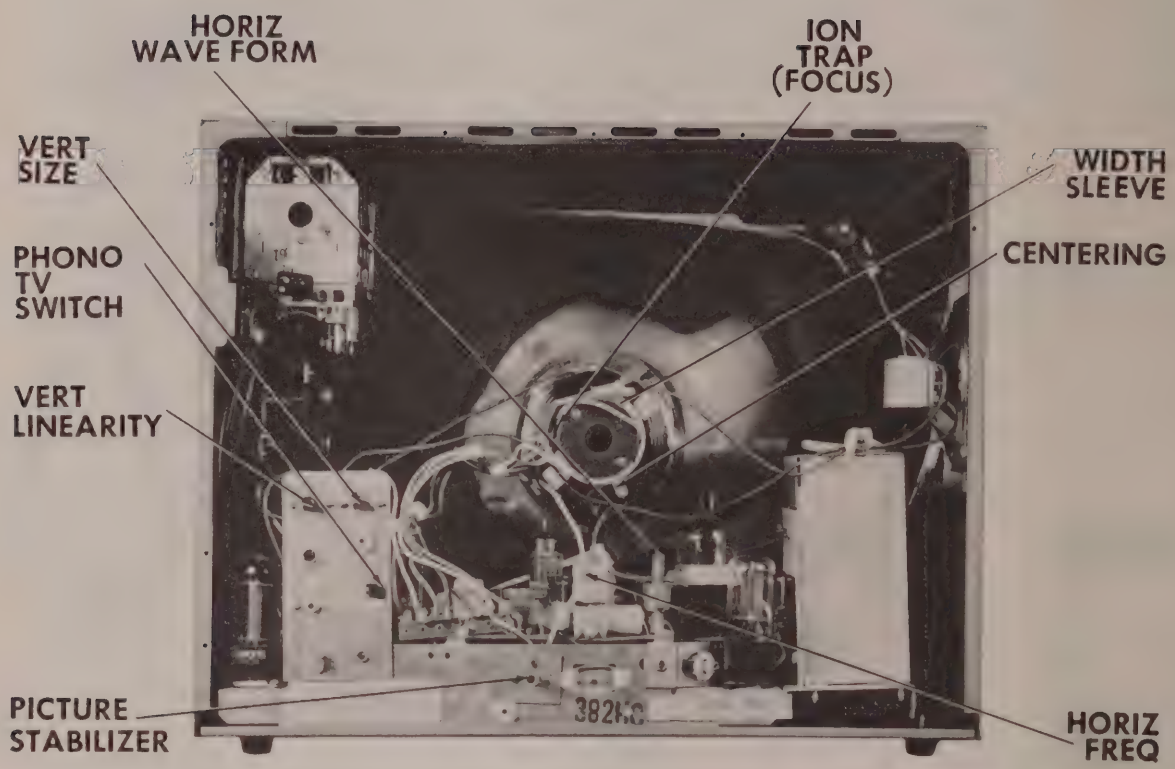
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3CB6	470K	56Ω	3Ω	4Ω	†610Ω	†610Ω	0Ω		
V2	5AM8	180Ω	1Ω	†610Ω	5.5Ω	6.5Ω	†610Ω	.1Ω	8200Ω	0Ω
V3	12BY7A	• 450Ω	485K	0Ω	8Ω	8Ω	6.5Ω	†5600Ω	†22Ω	0Ω
V4	5U8	†16K	41K	†20K	9Ω	8Ω	†490Ω	0Ω	0Ω	2.1meg
V5	3AV6	2.2meg	0Ω	12Ω	11Ω	0Ω	0Ω	†220K		
V6	12C5	180Ω	470K	11Ω	9Ω	470K	†470Ω	†760Ω		
V7	6CG7	• ‡3meg	• 1.1meg	0Ω	14Ω	15Ω	†13K	†1meg	0Ω	0Ω
V8	12W6GT	NC	12Ω	†290Ω	†142Ω	2.2meg	TP	14Ω	• 300Ω	
V9	6CG7	¶ ‡55K	850K	260K	14Ω	16Ω	†80K	310K	0Ω	0Ω
V10	25DN6	NC	18Ω	0Ω	TP	165K	NC	23Ω	†610Ω	TOP CAP ‡20Ω
V11	12AX4GTA	NC	NC	¶100K	NC	†22Ω	NC	18Ω	16Ω	
V12	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡640Ω
V13	17AVP4A	1.5Ω	10K	Pin 6 †22Ω	Pin 10 ‡27Ω	Pin 11 • 180Ω	Pin 12 0Ω			
V201	3BC5	500K	0Ω	1.5Ω	2Ω	†140Ω	†610Ω	0Ω		
V202	5AT8	15K	†5300Ω	0Ω	3Ω	2Ω	†2400Ω	†610Ω	0Ω	100K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE
• ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 140V SOURCE.
‡ MEASURED FROM PIN 3 OF V11.
NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a clip lead across the Horizontal Waveform coil (L14).

Turn the Picture Stabilizer control (R7) fully clockwise and tune to a known station.

Set the Horizontal Hold control fully clockwise.

Starting with the Horizontal Frequency slug (B1) fully counterclockwise, rotate clockwise until the picture just locks into sync, then turn one-half turn more.

Remove the clip lead from L14 and starting with the Horizontal Waveform slug (B2) fully counterclockwise ; turn slug clockwise until the picture almost locks in sync (3 to 4 diagonal bars).

Turn the Horizontal Hold control counterclockwise until the picture locks in and then back to full clockwise. If the picture falls out of sync, adjust B1 SLIGHTLY.

Check for horizontal hold while switching channels. If good hold action is not obtained at full clockwise position of the Horizontal Hold control, turn B1 SLIGHTLY until desired results are obtained. If excessive squedging (Christmas Tree effect) is experienced while switching channels, readjust B2 SLIGHTLY. Check to make sure no horizontal bending is introduced at the top of the picture.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the side.
2. Remove 5 metal screws from the rear cover. Remove the rear cover.
3. Remove 2 metal screws holding the AC interlock.
4. Remove the speaker leads, picture tube socket and yoke leads.
5. Remove 2 hex nuts holding the speaker. Remove the speaker.
6. Remove 2 metal screws holding the chassis at the top.
7. Remove 2 chassis bolts from the bottom.
8. Partially remove the chassis. Remove the HV lead and remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRADE NAME	Truetone MODELS 2D3820A, 2D3821A
SUPPLIER	Western Auto Supply Co., 2107 Grand Avenue, Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 130 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the rear cover, and supplying power to the receiver. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, thru a hole in the right side of the tuner rear cover as viewed from the rear. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

1. Follow steps 2 and 4 of "Chassis Removal".
2. Remove the front handle bolt and 5 metal screws holding the front to the cabinet.
3. Partially remove the front, remove the HV lead, and remove the front.
4. Loosen picture tube mounting strap bolt and remove the picture tube.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pin 6 and 10 or 6 and 2.

HORIZONTAL OSCILLATOR BUZZ ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSE DEVICE

A 4.7Ω fusible resistor (R62) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

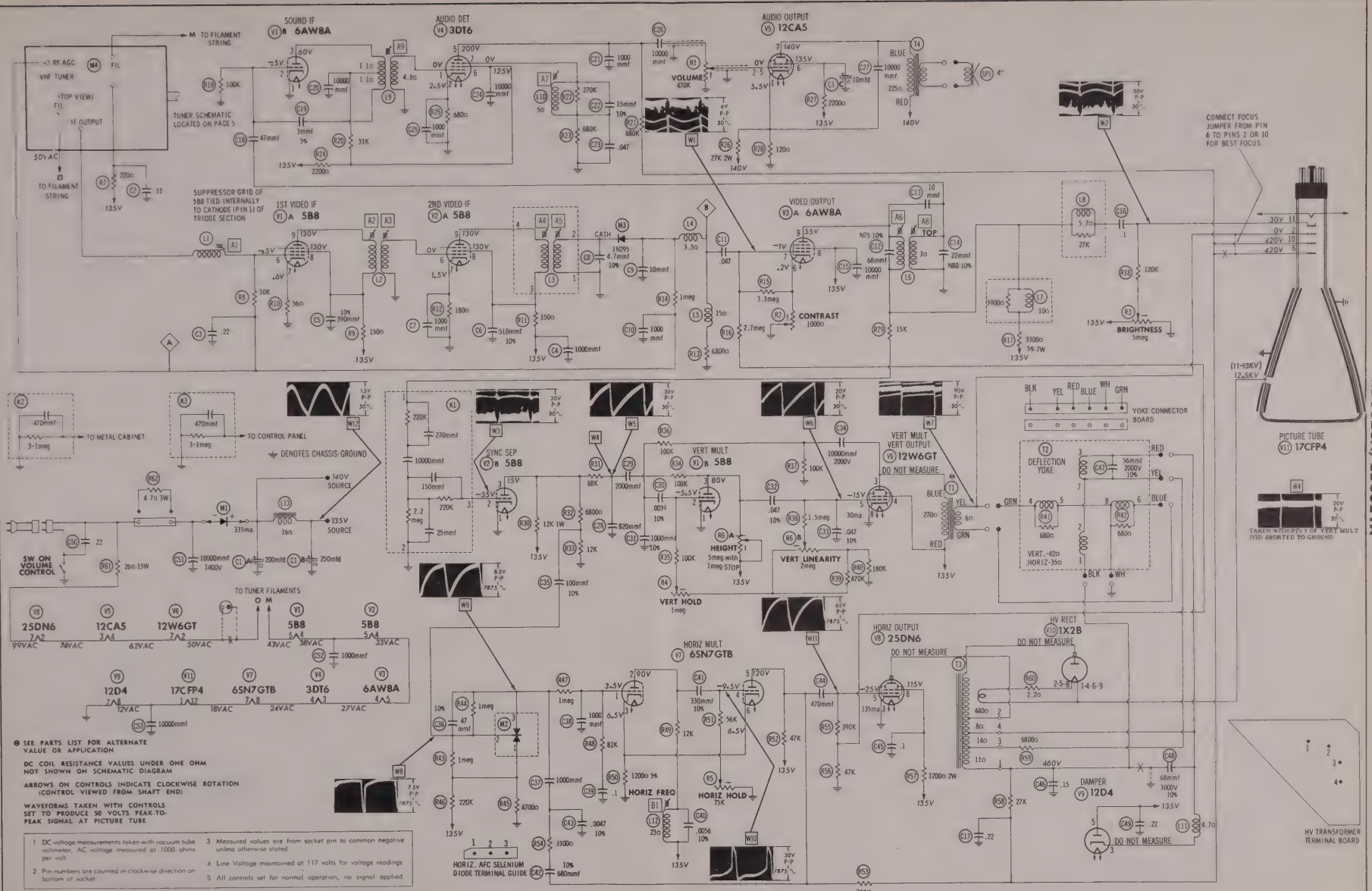
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

TRUETONE MODELS
2D3820A, 2D3821A

TRUETONE MODELS
2D3820A, 2D3821A

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

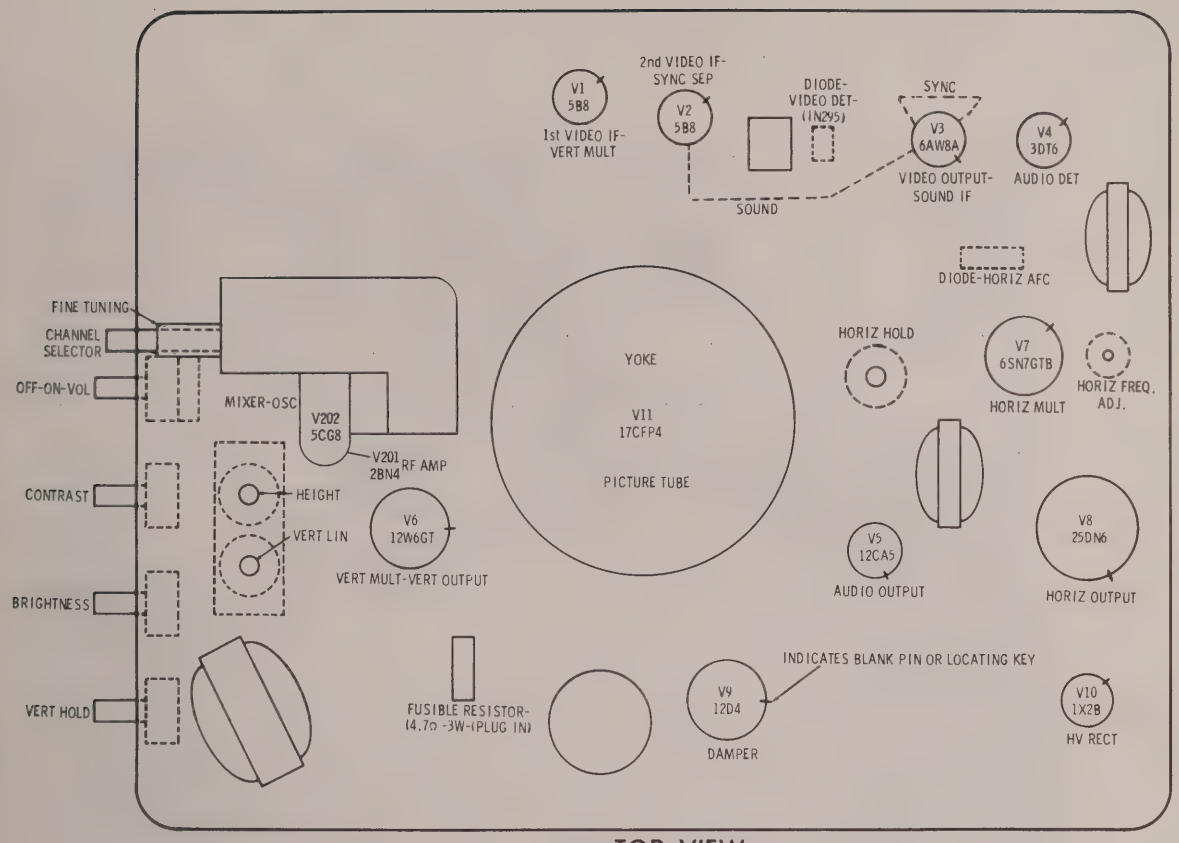

SOUND IF V3 B 6AW8A
AUDIO DET V4 3DT6
AUDIO OUTPUT V5 12CA5
VOLUME 470K
1ST VIDEO IF V1 A 5B8
2ND VIDEO IF V2 A 5B8
VIDEO OUTPUT V3 A 6AW8A
CONTRAST 10000Ω
BRIGHTNESS 5meg
TOP
CONNECT FOCUS JUMPER FROM PIN 6 TO PINS 2 OR 10 FOR BEST FOCUS.
PICTURE TUBE V11 17CFP4
YOKE CONNECTOR BOARD
DEFLECTION YOKE
VERT. -42Ω HORIZ-35Ω
TAKEN WITH PIN 3 OF VERT MULT (V10) SHORTED TO GROUND
VERT MULT V1 B 5B8
VERT MULT VERT OUTPUT V6 12W6GT
DO NOT MEASURE
SYNC SEP V2 B 5B8
HEIGHT 5meg with 1meg STOP
VERT LINEARITY 2meg
VERT HOLD 1meg
HORIZ MULT V7 6SN7GTB
HORIZ OUTPUT V8 25DN6
HV RECT V10 1X2B
DAMPER V9 12D4
HORIZ FREQ
HORIZ HOLD 75K
HORIZ. AFC SELENIUM DIODE TERMINAL GUIDE
HV TRANSFORMER TERMINAL BOARD
TO METAL CABINET
TO CONTROL PANEL
DENOTES CHASSIS GROUND
140V SOURCE
135V SOURCE
SW ON VOLUME CONTROL
TO TUNER FILAMENTS
25DN6 7A2 99VAC
12CA5 3A4 78VAC
12W6GT 7A2 62VAC
5B8 1A2 50VAC
5B8 5A4 43VAC
6AW8A 5A5 33VAC
12D4 7A8 12VAC
17CFP4 1A12 18VAC
6SN7GTB 7A8 24VAC
3DT6 6A3 27VAC
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TRUETONE MODELS 2D3820A, 2D3821A

FOLDER 3

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

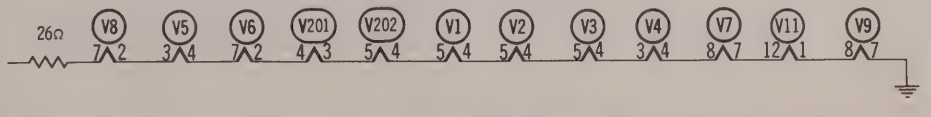
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R62), Rectifier (M1)**

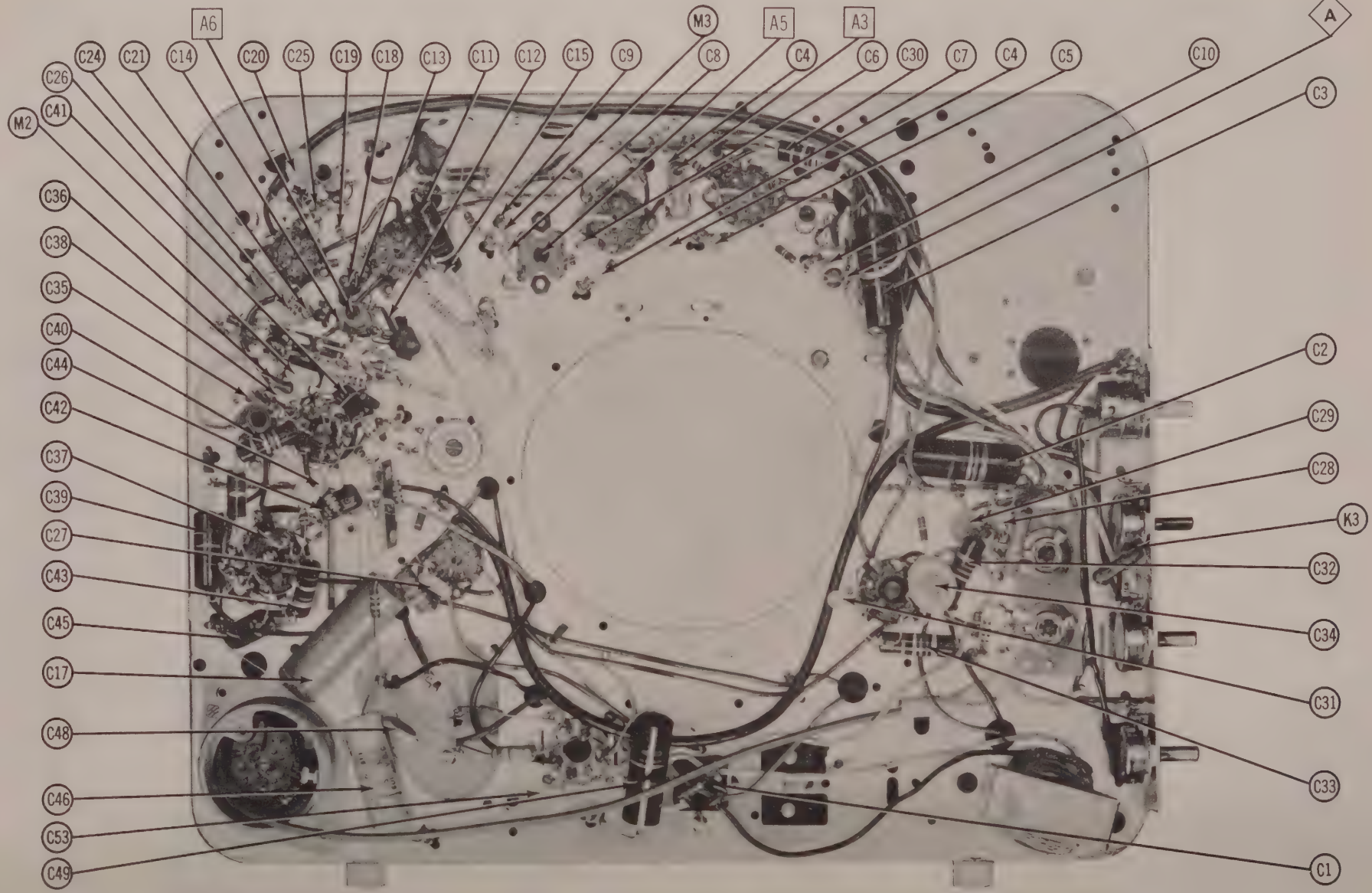
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, Diode (M3), V3**
No pic, no sound, has snow - **V201, V202**
No pic, has sound, has raster - **V3, V11**
Has pic, no sound - **V3, V4, V5**

SYNC FAILURE
No vert. sync - **V2**
No horiz. sync - **V2, Rectifier (M2)**
No vert. or horiz. sync - **V2**

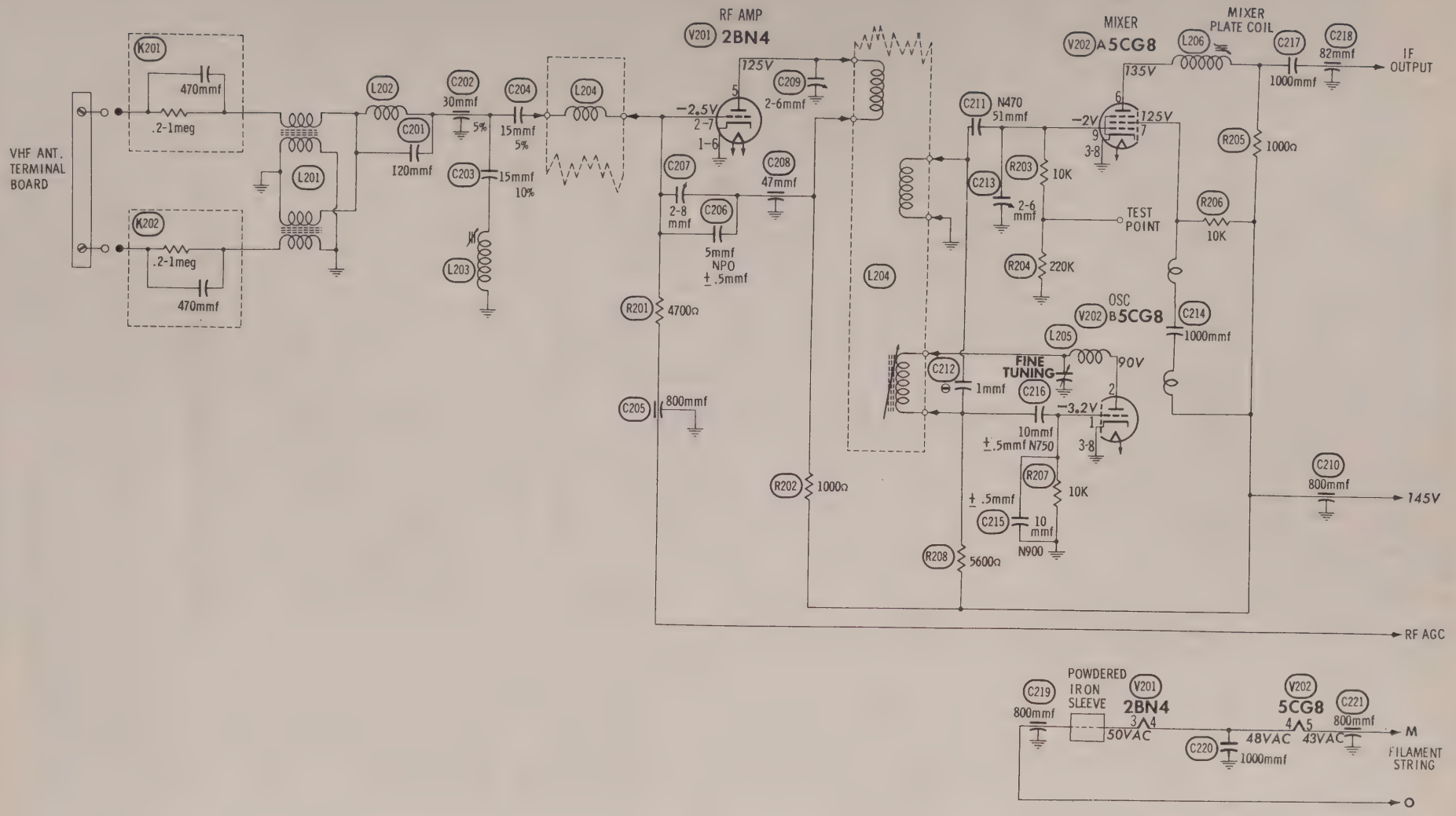
SWEEP FAILURE
No raster, has sound - **M2, V7, V8, V9, V10, V11**
No vertical deflection - **V1, V6**
Poor vert. linearity or foldover - **V1, V6**
Poor horiz. linearity or foldover - **V7, V8, V9**
Narrow picture - **V7, V8, V9, M1**
Vert. off freq. - **V1, V6**
Horiz. off freq. - **V9**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



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Howard W. Sams & Co., Inc. 1958

VHF TUNER #201-100148

TRUETONE MODELS
2D3820A, 2D3821A

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	2BN4	
V202	Mixer-Osc.	5CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		121-001521	DI-00012	DD-121	L10T12	ED-102	UC-5312	5GA-T12	
C202	30		121-001522							5%
C203	15		121-001523	NPO-DI 15	TCZ-15	C10Q15C	TCO-15	ZT-5415	5TCC-Q15	10%
C204	15		121-001524	NPO-DI 15	TCZ-15	C10Q15C	TCO-15	ZT-5415	5TCC-Q15	5%
C205	800		121-001525							
C206	5		121-001526	NPO-DI 5	TCZ-4R7		TCO-5			NPO ±.5mmf
C207	2-8		121-001536							
C208	47		121-001537							
C209	2-6		121-001527							
C210	800		121-001525							
C211	51		121-001528							N470
C212	1									①
C213	2-6		121-001527							
C214	1000		121-001658	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C215	10		121-001530							N900 ± .5mmf
C216	10		121-001532	N750-DI 10	TCN-10		TC7-10			N750 ± .5mmf
C217	1000		121-001533	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C218	82		121-001534							
C219	800		121-001525							
C220	1000		121-001533	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C221	800		121-001525							

① Some versions may use 1.5mmf ± .25mmf (Part #13D-111-6) in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R201	4700Ω		451-253472	
R202	1000Ω		451-253102	
R203	10K		451-253103	
R204	220K		451-253224	

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R205	1000Ω		451-253102	
R206	10K		251-253103	
R207	10K		451-253103	
R208	5600Ω		451-252562	

COILS (RF-IF)

ITEM No.	USE	TRUETONE PART No.	NOTES
L201	Ant. Trans.	121-001544	
L202	IF Trap Coil	121-001538	
L203	IF Trap Coil	121-001539	
L204	Coil Assy.	121-001540	Includes rotor

ITEM No.	USE	TRUETONE PART No.	NOTES
L205	RF Choke	121-001541	
L206	Mixer Plate Coil	121-001542	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .2-1meg	049-100072	Centralab	RC-471
				Sprague	R-9197
K202	Antenna Isolation	470mmf, .2-1meg	049-100072	Centralab	RC-471
				Sprague	R-9197

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M201	Antenna Input Assy.	121-001556	Includes K201, K202, L201
	Shaft & Rotor Assy.	121-001662	Includes L204

TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ALIGNMENT

For adjustment of the oscillator adjustment slugs, it is necessary to remove the rear cover of the receiver. The slugs are reached thru a hole in the tuner rear cover at about 6 o'clock. The oscillator slugs are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Disable the tuner oscillator by replacing the oscillator tube (V202) with one having the oscillator grid pin removed.
Short the antenna terminals together but not to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	42.75MC 45.75MC	Any non-interfering channel	Vert. Amp. thru detector (Fig.1) to pin 9 (plate) of 5B8 (V1). Low side to chassis.	Mixer Plate Coil & A1	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.
2.	1000mmf Ceramic Capacitor	High side to pin 6 (grid) of 5B8 (V1). Low side to chassis.	"	"	"	Vert. Amp. thru detector (Fig. 1) to pin 9 (plate) of 5B8 (V2). Low side to chassis.	A2, A3	"
3.	"	High side to pin 6 (grid) of 5B8 (V2). Low side to chassis.	"	"	"	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across video det. load).	A4, A5	"
4.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	"	"	"	"		Retouch Mixer Plate Coil and A1 thru A5 as required for response similar to Fig. 3. Remove bias and replace V202 in its socket.

SOUND IF ALIGNMENT

Set the contrast control fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1000mmf Ceramic Capacitor	High side to point (B). Low side to chassis.	Not used	4.5MC (400∿ 30% AM)	Any non-interfering channel	Vert. Amp. thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis.	A6	Turn A6 and A8 almost out of coil forms. Then adjust A6 for MINIMUM scope indication.
6.	"	"	4.5MC (15KC Swp)	Not used	"	Across speaker voice coil	A7, A8, A9	Use only enough sweep generator output to provide a usable pattern on scope. Turn A7 fully clockwise, then counter clockwise for maximum scope indication. Adjust A8 and A9 for maximum scope indication. Remove test equipment and tune in a local TV station. Retouch A7 for MINIMUM buzz.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

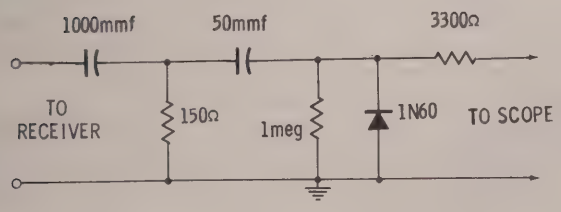


FIG. 1

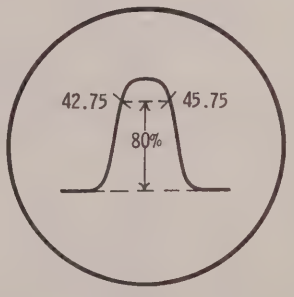


FIG. 2

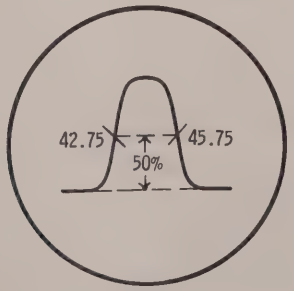


FIG. 3

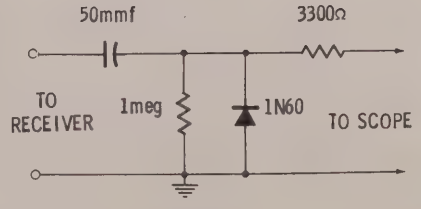


FIG. 4

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp - Vert. Mult	5B8	
V2	2nd. Video IF Amp - Sync Sep	5B8	
V3	Video Output-Sound IF Amp	6AW8A	
V4	Audio Det	3DT8	
V5	Audio Output	12AU7	
V6	Vert. Mult.-Vert. Output	12AV6GT	
V7	Horiz. Mult	6SN7GTB	
V8	Horiz. Output	25DN6	
V9	Damper	12D4	
V10	HV Rectifier	1X4B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	TRUETONE PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V11	17CEP4			17CEP4 ①	① "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP.	VOLT	TRUETONE PART No	AEROVOX PART No	CORNELL DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No
CLA	≋100	200	245-300001	AFHS3-13-90	XC0129			C-Q-008 MT-4510	*R2630
B	≋250	200							
C	≋10	200							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	.33	200	501-014334	P388N-33				GEM-2033		
C2	.22	200	501-014224	P388N-22		CUB2P22		GEM-2022	2TM-P22	
C4	1000		047-100330	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C5	390		047-100669		MD-391	L10T39	ED-390			10%
C6	680		347-100001			L10T61	ED-510			10%
C7	1000		047-100330	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C8	4.7		047-200403-06	NPO-8I 4.7	TCZ-4R7	CTA5Y47C	TCO-4.7	ZT-5547	5TCCB-Y47	10%
C9	10		047-100160-11	SI 10		L75Q1	GP-10	UC-541	5TCC-Q1	
C10	1000		047-100330	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C11	.047	200	501-014473	P388N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C12	68		047-100635							N75 10%
C13	10		047-100160-11	SI 10	D6-100	L75Q1	GP-10	UC-541	5TCC-Q10	
C14	22		047-200634							N80 10%
C15	10000		047-100234	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C16	.1	200	501-014104	P388N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C17	.33	600	501-034224	P588N-33		CUB6S22		GEM-6022	6TM-P22	
C18	47		478-027470	SI 47	D6-470	L75Q47	GP-47	UC-5447	5GA-Q47	
C19	3		047-100907							5%
C20	10000		047-100234	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C21	1000		047-100330	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C23	15		047-100480	NPO-8I 15	D6-150	CTA5Q15C	GP-15		5TCC-Q15	10%
C23	.047	200	501-014473	P388N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C24	10000		047-100234	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C25	1000		047-100330	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C26	10000		047-100234	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C27	10000		047-100234	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C28	620		047-100606	BPD-0008	DD-621	BYA10T62	ED-620		5GA-T62	
C29	2000		047-100396	BPD-001	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C30	.0039	400	246-300003							10%
C31	1000		047-100686				ED-1000			10%
C32	.047	200	501-014473							10%
C33	.047	200	501-014473							10%
C34	10000	2000	047-100706				ED-01	DC511	20HK5-S1	
C35	100		478-027101	NPO-8I 100	D6-101	CTA5T1C	GP-100	ZT-531	5TCC-T1	10%
C36	47		478-027470	NPO-8I 47	D6-470	CTA5Q47C	GP-47		5TCC-Q47	10%
C37	1000		047-100503	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C38	1000		047-100330	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C39	.1	200	501-014104	P388N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C40	.0056	400	246-300004					GEM-16256		10%
C41	330		347-300010	1469-00033	MD-331	5R5T33	CY15C331K		MS-333	10%
C43	680		347-100014	1469-00068	MD-681	1R5T68	CY30C681K		MS-368	10%
C43	.0047	200	501-014172					GEM-16247		10%
C44	470		047-100636	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C45	.1	200	501-014104	P388N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C48	.15	600	501-034154	P688N-15		CUB2P15		GEM-3015	2TM-P15	
C47	56	3000	047-200637			HVA20Q56			20GA-Q56	10%
C48	63	3000	047-200473						30GA-Q68	10%
C49	.22	200	501-014224	P388N-22		CUB2P22		GEM-2022	2TM-P22	
C50	.22	600	499-034224	P688N-22		CUB6P22		GEM-6022	6TM-P22	
C51	10000	1400	347-100008						20HKB-S1	
C52	1000		047-100330	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5HK-DI	
C53	10000		047-100224	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	
R1A	470K	½	225-300017	B-60	A47-500K-Z	Q13-133	TA55A	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-46	
R2	1000Ω	½	225-300018	B-505		Q17-108	U3	Contrast
R3	5meg	½	225-300019			Q17-141	TA56R	Brightness
R4A	1meg	½	225-300020	B-69	A47-1meg-S	Q11-137	TA16L	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	75K	½	025-201305	AB-35	A47-75K-S	Q11-125	PTA15L	Horiz. Hold
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R6A	5meg	½	025-201386					Height with 1meg stop
B	2meg	½						Vert. Lin.

* Use KR with CRL "red label" control and KB with "blue label" control.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING		TRUETONE PART No	NOTES
	OHMS	WATT		
R7	220Ω		451-252221	
R8	10K		451-252103	
R9	150Ω		451-252151	
R10	56Ω		451-252560	
R11	150Ω		451-252151	
R12	180Ω		451-252181	
R13	6800Ω		451-252682	
R14	1meg		451-252105	
R15	3.3meg		451-252335	
R16	4.7meg		451-252475	
R17	33000Ω 5%	7	024-101133	
R18	120K		451-252124	
R19	100K		451-252104	
R20	33K		451-252333	
R21	680K		451-252684	
R22	270K		451-252278	
R23	680K		451-252684	
R24	2200Ω		451-252222	
R25	680Ω		451-252681	
R26	47K	2	451-652273	
R27	2200Ω		451-252222	
R28	120Ω		451-252121	
R29	15K		451-252153	
R30	14K	1	451-352123	
R31	68K		451-252883	
R32	6800Ω		451-252682	
R33	12K		451-252123	
R34	100K		451-252104	
R35	100K		451-252104	
R36	100K		451-252104	
R37	100K		451-252104	
R38	1.5meg		451-252155	
R39	470K		451-252474	
R40	180K		451-252184	
R41	680Ω		451-252681	
R42	680Ω		451-252681	
R43	1meg		451-252105	
R44	1meg		451-252105	
R45	4700Ω		451-252472	
R46	220K		451-252224	
R47	1meg		451-252105	
R48	82K		451-252283	
R49	12K		451-252123	
R50	12000Ω 5%		451-25122	
R51	56K		451-252563	
R52	47K		451-252473	
R53	390K		451-252394	
R54	33000Ω		451-252332	
R55	390K		451-252394	
R56	47K		451-252473	
R57	12000Ω	2	451-252122	
R58	27K		451-252273	
R59	68000Ω		451-252682	
R60	2.2Ω		451-252022	
R61	250Ω	15	224-200007	
R62	4.7Ω	3	024-201116	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							NOTES
		TRUETONE PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	
T1	Vert. Output	065-100303	Z1900 ①	A-3822 ②			26S75 ①		
T2A	Alt. Vert. Output	065-300303							
T2A	Yoke-Horiz. (24MH)	053-300396	DF-610 ③④	MDF-92 ③④	Y90F19/43 ③④			Y-45 & NW19 ④	
B	(90°)-Vert. (40MH)								
MB	Rear Cover & Centering Device	221-300003							
	Yoke Clamp	276-300024							
T3	Horiz. Output	065-300301		HVO-134	X254 *	HO-297 *		D-124	

① Use 6 to 1 turns ratio.
② Drill new mounting hole(s).
③ Use original yoke damping network, if necessary.
④ Connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
2			2	2		
4			4	4		
3			3	3		
1			1	1		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	4000Ω	3-4Ω	255-100012	Z2107 ①	A-3026	AU-601 ①	A-3326	26S48	S-6X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	255-300010	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TRUETONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	1st. Video IF	051-202187	17-4534	TV-131		VF-4	
L2	2nd. Video IF	051-202188					
L3	3rd. Video IF	050-400888					
L4	RF Choke	053-100307					7.5 Microhenries
L5	Shunt Peaking Coil	051-102102		TV-207	6156		808 Microhenries
L6A	4.5MC Trap	051-201998		TV-120			
B1	1st. Sound IF						
L7	Shunt Peaking Coil	051-102101	19-4400*	TV-201 *	6134 *		383 Microhenries, wound on 3900Ω resistor
L8	Series Peaking Coil	051-102184	19-3160 ▲	TV-196 ▲	6120 ▲	VP-5 ▲	163 Microhenries, wound on 27K resistor
L9	2nd. Sound IF	051-202166					
L10	Quadrature Coil	051-201857	20-1005 ♦	TV-121 ♦	1480 ♦		
L11	RF Choke	053-100342					7.5 Microhenries, IRC Part #CLA

* Parallel with 3900Ω resistor.
▲ Parallel with 27K resistor.
♦ Drill new mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI	SEC	TRUETONE PART No	Meissner PART No	Merit PART No	Miller PART No.	Ram PART No.	Thordarson PART No.	
L12	23Ω		051-202189	19-1575	TV-163 *	6210 *	H-102 *	19S-4	* Enlarge mtg. hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	CURRENT (Measured)	DC. RES.	INDUCTANCE @ CURRENT 1000 ~Cy.	TRUETONE PART No.	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L13	450A	18Ω	45 Hy	256-400004 ①	C5037 ①			C-2326 ①	26C93 ①	C-27X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA	
K1	Sync Couplng	270mmf, 10000mmf, 150mmf, 25mmf, 220K, 220K, 2.2meg	249-200001		
K2	Cabinet Isolation	470mmf, .3-1meg	049-100072	Centralab Sprague	RC-471 R-8177
K3	Control Bracket Isolation	470mmf, .3-1meg	049-100072	Centralab Sprague	RC-471 R-8177

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	TRUETONE PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.335A	227-200001 ① 027-300226 ③	K1615 ②	1N1008 ②	SD94A 1T1 ③ ④	M500 ①	① Silicon type. ② Germanium type. ③ Selenium type. ④ 2 Required.
M2							

CRYSTAL DIODES

ITEM No.	ORIG TYPE	REPLACEMENT DATA			NOTES
		TRUETONE PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N295	019-301980	1N60	1N60	Video Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Tuner	201-100148	VHF
M5	Centering Device	221-300003	Includes yoke rear cover

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

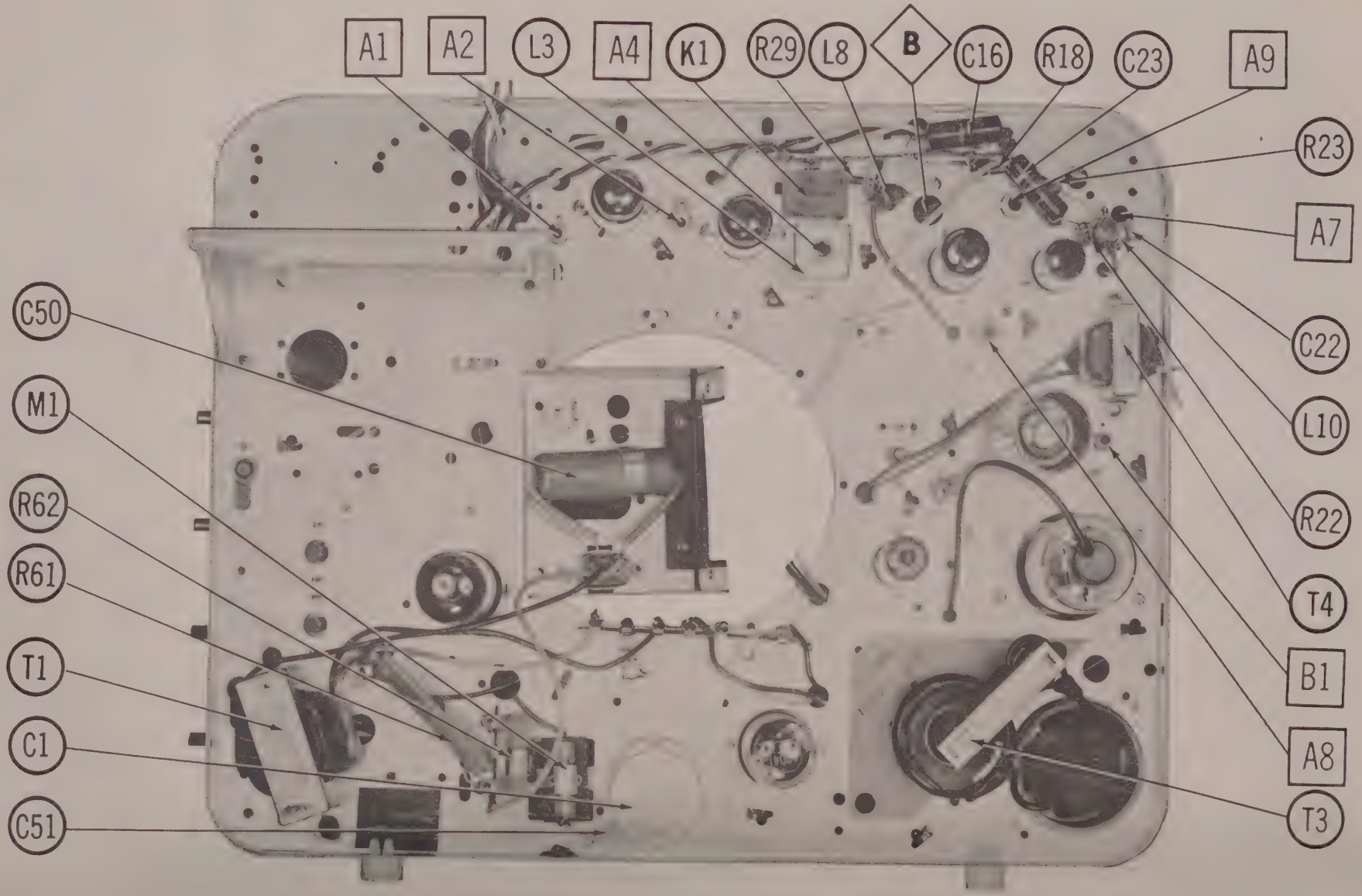
NAME	PART NO.	DESCRIPTION
Safety Glass	222-400009	
Escutcheon	207-500075	
Knob	215-100065	Channel Selector
Knob	215-100063	Fine Tuning
Knob	215-100062	Control
Handle Assy.	241-960075	Includes Handle, Antenna and Pressure Plate
Handle	206-100031	
Antenna	057-200233	
Pressure Plate	008-103836	
Cabinet	256-200022	

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8463 (Round) - 3 Conductor 8462 (Round) - 2 Conductor

TRUETONE MODELS 2D3820A, 2D3821A

FOLDER 3



CHASSIS TOP VIEW

C220
C216
R207
C211
C215
C212
R208
C208
C204
C203
L206
C207
R201
C206
C209
R204
C213
R203
R202
C214
R206
C217
L205
C218
L203
C201
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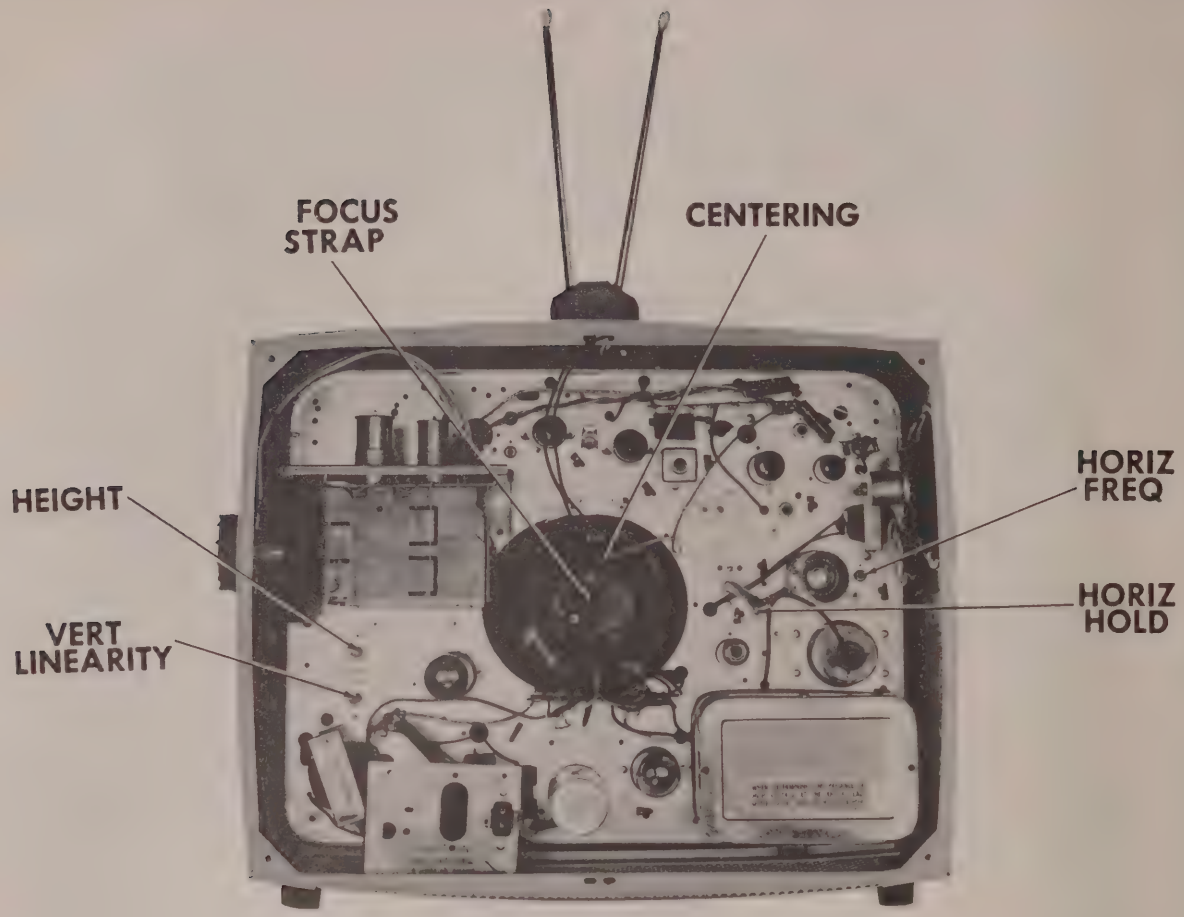
C221
C210
R205

RF TUNER



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a station, preferably with a test pattern.

2. Set the Horizontal Hold (R5) at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally.

3. Check horizontal sync on other channels and if necessary, retouch B1 for best sync on all channels.

CHASSIS-RESISTOR AND INDUCTOR IDENTIFICATION

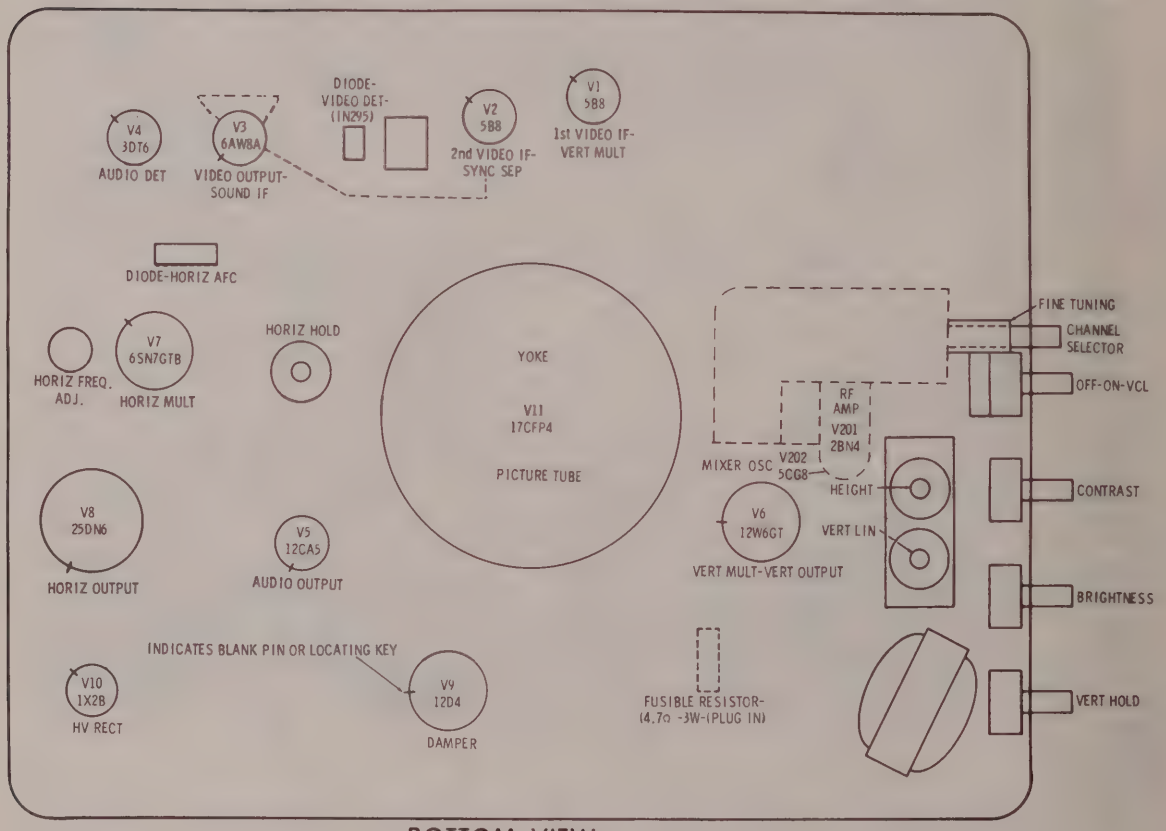
TRUETONE MODELS
2D3820A, 2D3821A

FOLDER 3

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	5B8	0Ω	•900K	•†2meg	8Ω	9Ω	1meg	56Ω	†150Ω	†150Ω
V2	5B8	0Ω	2.4meg	†8000Ω	7Ω	8Ω	.1Ω	180Ω	†150Ω	†150Ω
V3	6AW8A	0Ω	100K	†35K	6Ω	7Ω	•120Ω	1.3meg	†16Ω	†3300Ω
V4	3DT6	4.3Ω	680Ω	6Ω	5Ω	‡700K	†2200Ω	680K		
V5	12CA5	115Ω	0Ω	15Ω	13Ω	0Ω	†2200Ω	†225Ω		
V6	12W6GT	TP	10.5Ω	†286Ω	†16Ω	•2.1meg	TP	13Ω	0Ω	
V7	6SN7GTB	2.3meg	†12K	1200Ω	• 80K	†47K	1200Ω	3.5Ω	5Ω	
V8	25DN6	TP	15Ω	0Ω	TP	440K	TP	20Ω	†1200Ω	TOP CAP ‡13.7Ω
V9	12D4	NC	TP	¶	NC	†16Ω	NC	0Ω	2.5Ω	
V10	1X2B		PINS	1 THRU 9	HAVE	INFINITE	RESISTANCE			TOP CAP ‡450Ω
V11	17CFP4A	2.5Ω	9.5Ω	PIN 6 ‡27K	PIN 10 ‡27K	PIN 11 • 240K	PIN 12 3.5Ω			
V201	2CY5	1meg	0Ω	10Ω	10.5Ω	†220Ω	†7500Ω	0Ω		
V202	5CL8	15K	†4900Ω	0Ω	9Ω	10Ω	†2400Ω	†220Ω	0Ω	220K

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 140V SOURCE.
‡ MEASURED FROM PIN 3 OF V9.
NC NO CONNECTION
TP TIE POINT



BOTTOM VIEW

TUBE PLACEMENT CHART

SET 406 FOLDER 4

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R, A4012H, R (Ch. 19A30, Q, U)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 9 push-on type knobs from the front. (NOTE: 4 located behind control panel door.)

2. Remove 9 metal screws holding the rear cover. Remove the rear cover.

3. Remove the speaker leads, tuner output lead, tuner power leads, pilot lamp lead and tone control cable.

4. Remove 2 metal screws, inside the cabinet, holding the On-Off-Volume control.

5. Remove 4 metal screws holding the tuner to the cabinet and remove the tuner.

6. Remove 8 hex nuts holding the 2 speakers. Remove the speakers.

7. Remove 4 chassis bolts from the bottom.

8. Remove the chassis.

MODEL A2329R(CH.19A30)

TRADE NAME	Zenith	MODELS	CHASSIS
		A2329R, A2330E, R, A2360M, R	19A30
		A2329RU, A2330EU, RU, A2360MU, RU	19A30U
		A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R, A4012H, R	19A30Q
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Avenue, Chicago 39, Illinois		
TYPE SET	Television Receiver		
TUBES	Nineteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 205 Watts, 1.9 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible through an access hole in the receiver rear cover. Set the Fine Tuning to the center of its range. The adjustments are accessible one at a time as the Channel Selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 push-on type knobs at the top of the safety glass. Remove 4 metal screws holding the 2 knob escutcheons. Tilt the glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
The focus may be varied by means of a Focus Control. (For location, see tube placement chart.)

C. Fringe Lock
Adjust picture to lock in with hold controls. If picture jitters, tears, etc. adjust Fringe Lock until stable. Readjust the hold controls and check operation on all channels in the area.

D. Width
The width may be varied by means of a metallic sleeve located between the Yoke and the Picture tube neck. Adjust sleeve in or out of the yoke for a picture slightly larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency coil is used as the Horizontal Hold control. Adjust the Horizontal Hold until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSES

One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

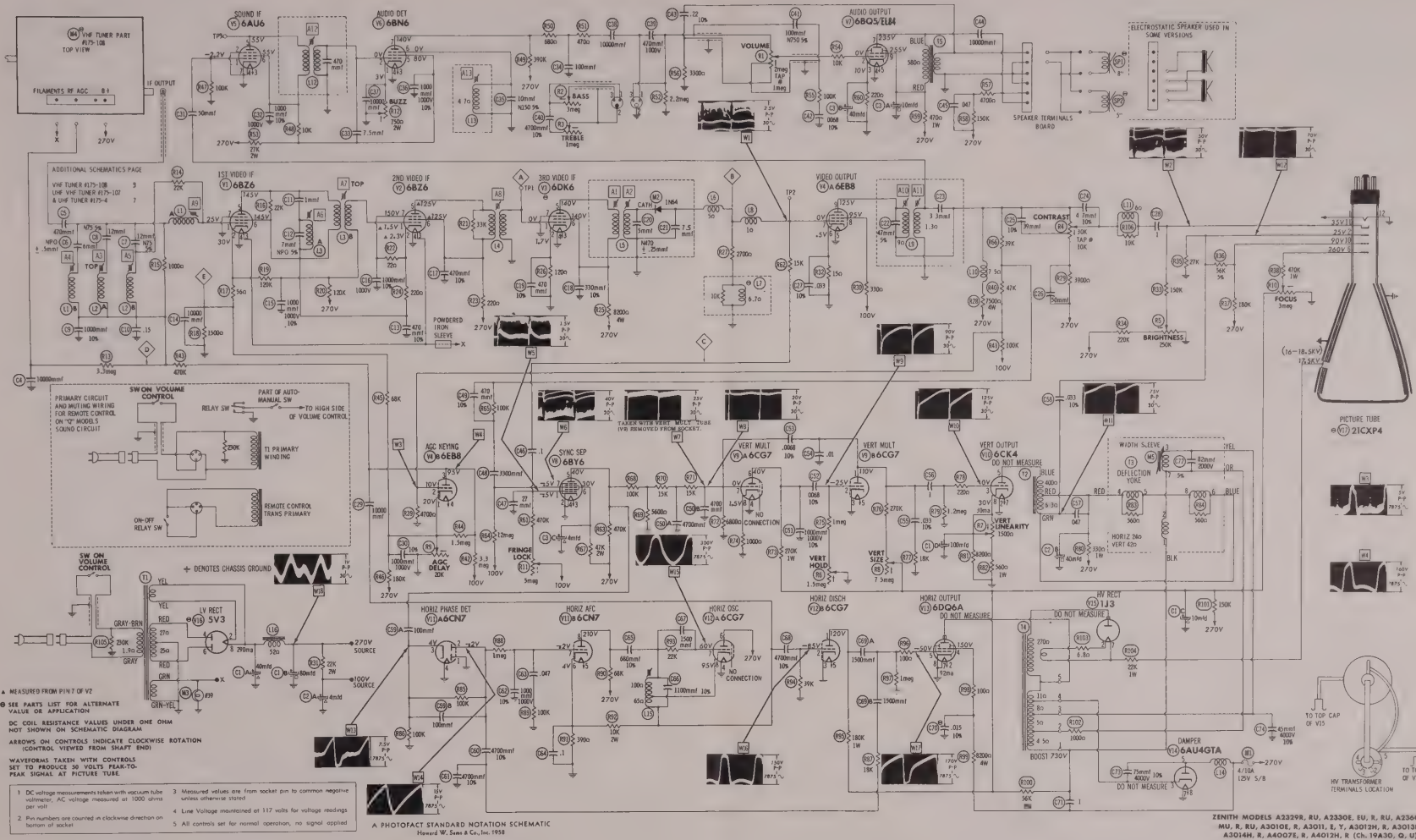
ANTI-PIN CUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position the 2 magnets so that all sides are straight.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H536

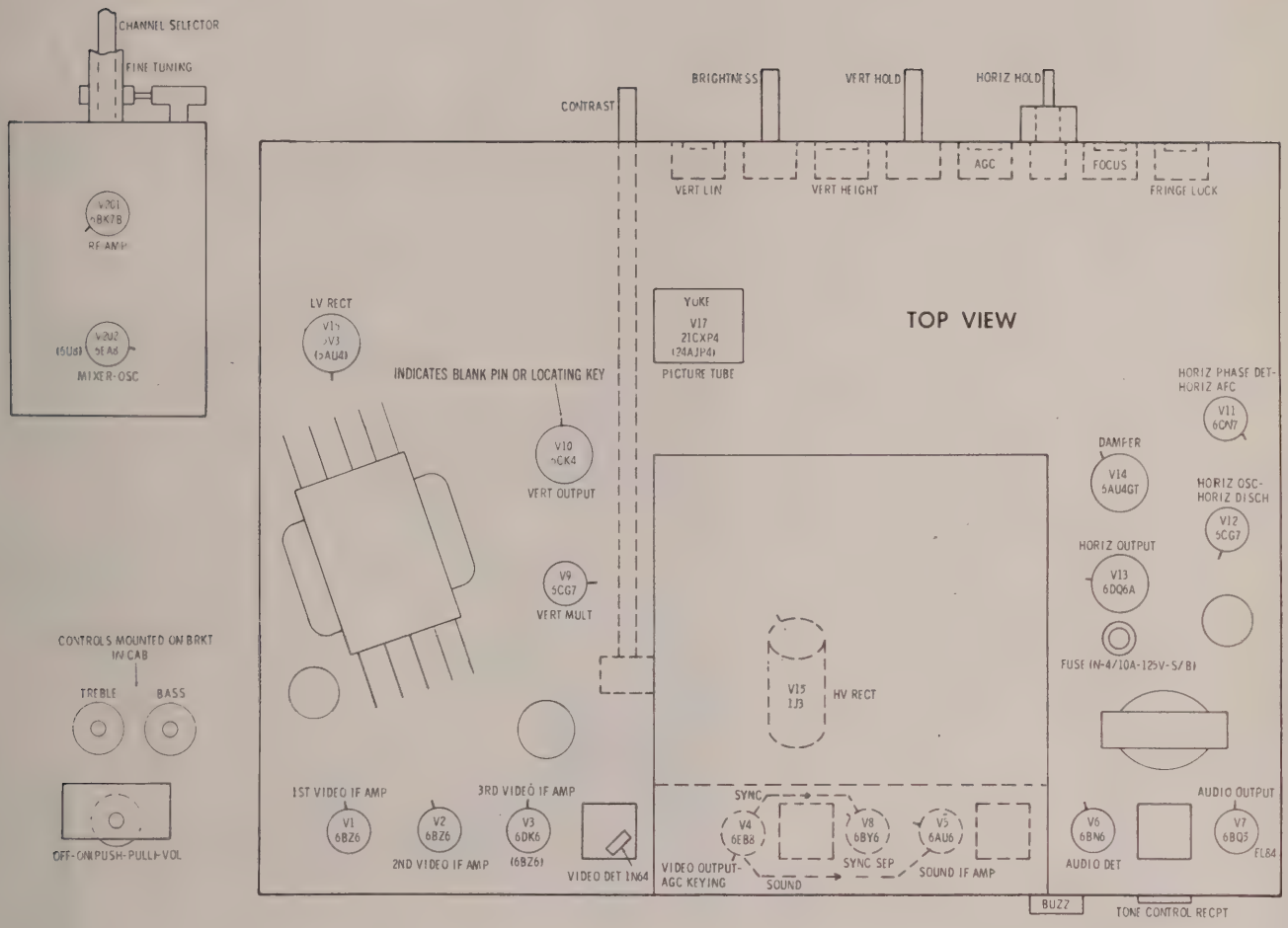
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America


SOUND IF V5 6AU6
AUDIO DET V6 6BN6
AUDIO OUTPUT V7 6BQ5/EL84
VHF TUNER PART #175-108 TOP VIEW
FILAMENTS RF AGC B+
IF OUTPUT
VOLUME
BASS
TREBLE
ELECTROSTATIC SPEAKER USED IN SOME VERSIONS
SPEAKER TERMINALS BOARD
ADDITIONAL SCHEMATICS PAGE
VHF TUNER #175-108 9
UHF VHF TUNER #175-107 7
& UHF TUNER #175-4 7
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6DK6
VIDEO OUTPUT V4 A 6EB8
CONTRAST
FOCUS
BRIGHTNESS
POWDERED IRON SLEEVE
SW ON VOLUME CONTROL
PRIMARY CIRCUIT AND MUTING WIRING FOR REMOTE CONTROL ON "Q" MODELS SOUND CIRCUIT
PART OF AUTO-MANUAL SW
TO HIGH SIDE OF VOLUME CONTROL
T1 PRIMARY WINDING
REMOTE CONTROL TRANS PRIMARY
ON-OFF RELAY SW
RELAY SW
AGC KEYING V8 6EB8
SYNC SEP V8 6BY6
VERT MULT V9 A 6CG7
VERT MULT V9 B 6CG7
VERT OUTPUT V10 6CK4
DO NOT MEASURE
PICTURE TUBE V17 21CXP4
WIDTH SLEEVE
DEFLECTION YOKE
HORIZ 24Ω
VERT 42Ω
VERT LINEARITY
VERT SIZE
VERT HOLD
FRINGE LOCK
AGC DELAY
HORIZ PHASE DET V11 A 6CN7
HORIZ AFC V11 B 6CN7
HORIZ OSC V12 A 6CG7
HORIZ DISCH V12 B 6CG7
HORIZ OUTPUT V13 6DQ6A
DO NOT MEASURE
HV RECT V15 1J3
DO NOT MEASURE
LV RECT 5V3 V16
DAMPER 6AU4GTA V14
BOOST 730V
HV TRANSFORMER TERMINALS LOCATION
TO TOP CAP OF V15
TO TOP CAP OF V13
DENOTES CHASSIS GROUND
270V SOURCE
100V SOURCE
NO CONNECTION
▲ MEASURED FROM PIN 7 OF V2
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1 DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E R, A4012H, R (Ch. 19A30, Q, U)

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E R, A4012H, R (Ch. 19A30, Q, U)

FOLDER 4

TUBE PLACEMENT CHART



ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R, A4012H, R (Ch. 19A30, Q, U)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

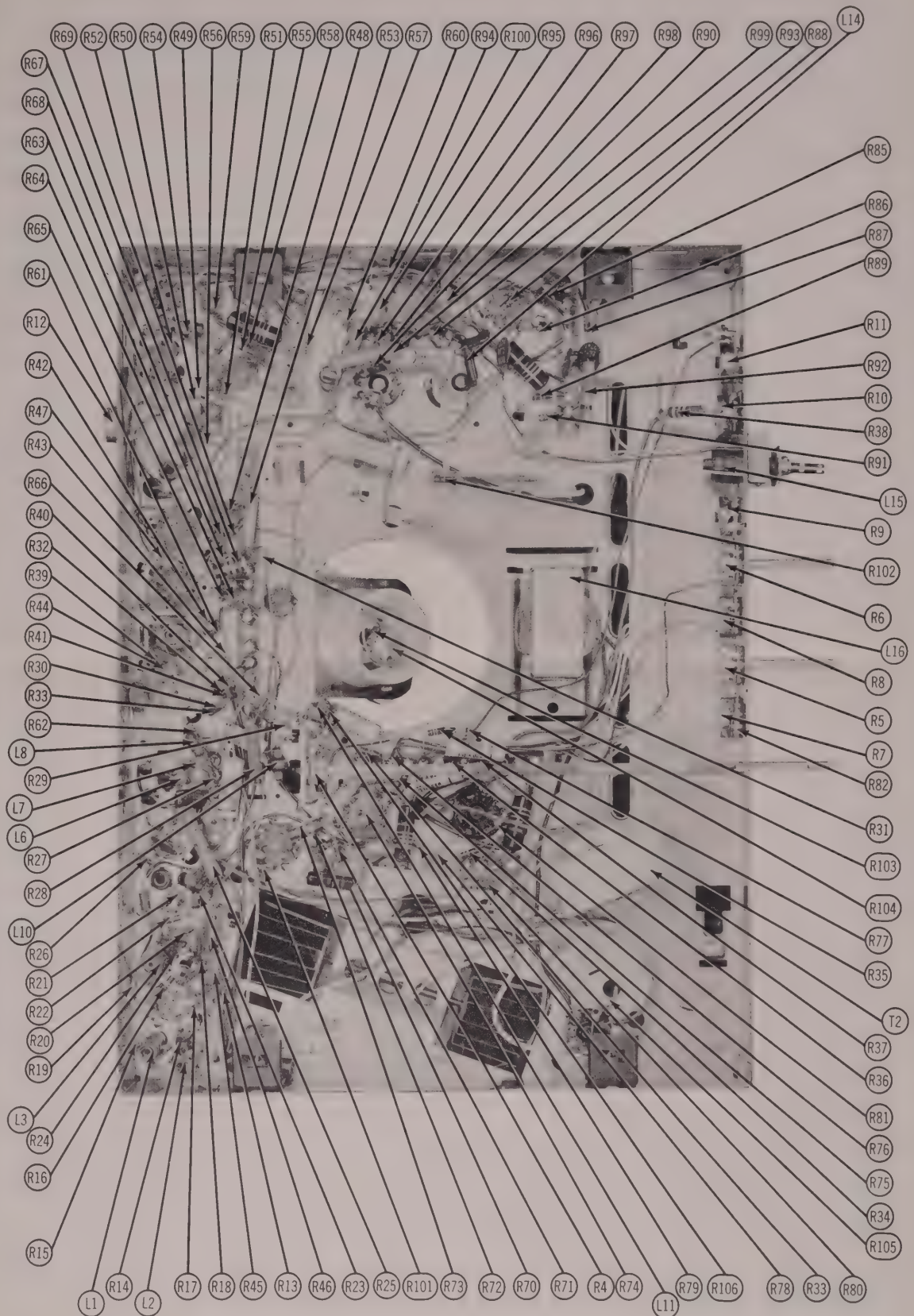
POWER SUPPLY FAILURE
No raster, no sound V16

SWEEP FAILURE
No raster, has sound Fuse (M1), V11, V12, V13, V14, V15, V17
No vertical deflection V9, V10
Poor vert. linearity or foldover V9, V10
Poor horiz. linearity or foldover V12, V13, V14
Narrow picture V12, V13, V14, V16
Vert. off freq. V9
Horiz. off freq. V11, V12

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (M2), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V17
Has pic, no sound V5, V6, V7
Overloaded picture V4

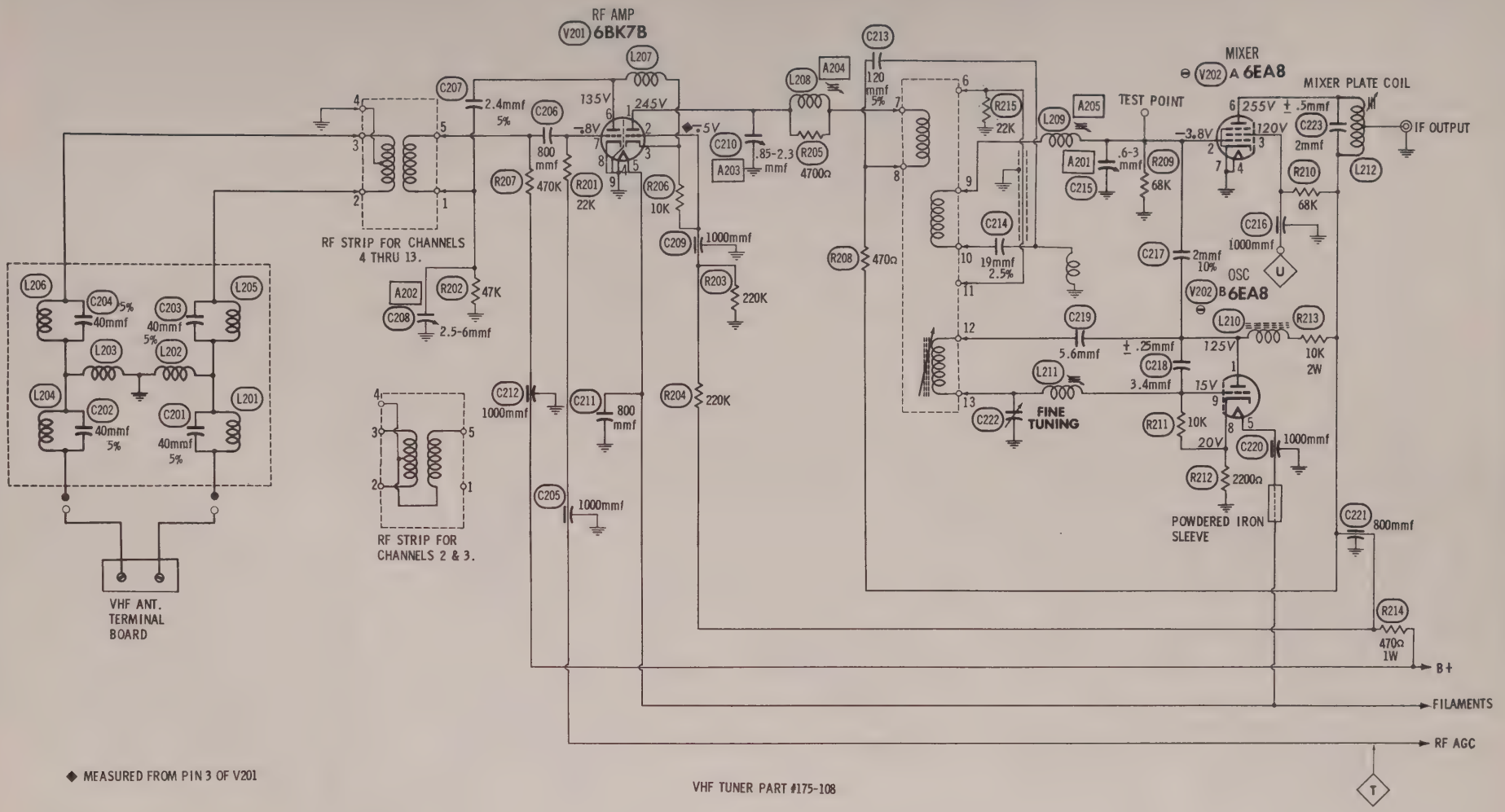
SYNC FAILURE
No vert. sync V8
No horiz. sync V8, V11
No vert. or horiz. sync V8

FOLDER 4



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M,
MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H,
A3014H, R, A4007E, R, A4012H, R (CH. 19A30, Q, U)



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #175-108

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R, A4012H, R (Ch. 19A30, Q, U)

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS #175-107, #175-108

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Individual channel adjustment screws are accessible one at a time, thru a hole in the back of the tuner, as the channel selector is rotated. Set the Fine Tuning to the center of its range and switch to channel to be adjusted. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	50-30Ω Matching Trans.	Across VHF antenna terminals thru matching transformer.	69MC (10MC Swp)	67.25MC 71.75MC	4	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201, A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2.	"	"	201MC (10MC Swp)	199.25MC 203.75MC	"	"	A204, A205	Adjust for maximum gain and symmetry of response similar to Fig. 201. with markers as shown. Repeat steps 1 and 2 until best overall symmetry is obtained.

UHF ALIGNMENT FOR TUNER #175-4

Alignment of the UHF tuner should not be attempted without the proper test equipment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Fig. 202	Across UHF antenna terminals thru matching network (Fig. 202).	713MC (10MC Swp)	711.25MC	53	Vert. Amp. thru 10K across video detector load.	A206, A207, A208	With the UHF tuning knob set to channel 54, the rocker arm on the tuner should be in the horizontal position. If necessary, loosen set screw and turn the shaft independently of the pulley until the arm is in the horizontal position with the channel indicator on channel 54. Tighten the set screw. If the calibration is off more than 3 channels, adjust A206 to place video marker at 50% on curve as in Fig. 203. The image (weaker response) will appear also. The response toward counterclockwise position of A206 is the proper response. Adjust A207 and A208 for maximum amplitude of response similar to Fig. 203.
4.	"	"	473MC (10MC Swp)	471.25MC	14	"		Check for response similar to Fig. 203. If the oscillator is off more than 3 channels, adjust oscillator travel adjustment (osc., mixer and antenna travel adjustments are the three hex nuts on top of the UHF tuner next to the tuner chassis) to scale. Care must be used when making the adjustment so as not to move the rocker arm out of its bearing. Set the mixer and antenna travel adjustments for maximum response on scope.
5.	"	"	887MC (10MC Swp)	885.25MC	83	"	A209, A210, A211	Adjust A209 to place marker at 50% on curve similar to Fig. 203. Adjust A210 and A211 for maximum amplitude and symmetry.

FIG.201

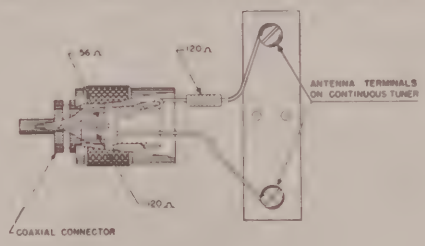


FIG.202

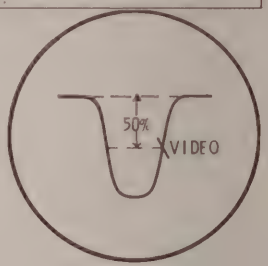
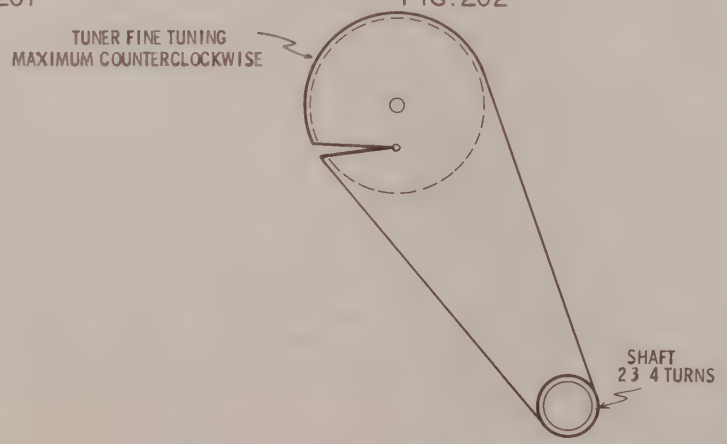


FIG.203



FINE TUNING DRIVE CORD STRINGING

UHF-VHF TUNER #175-107 & UHF TUNER #175-4

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4002E, R, A4012H, R (CH. 19430, Q, U)

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	470mmf	High side to point (A). Low side to chassis.	44MC (10MC Swp)	39.75MC 41.25MC 45.75MC	Between any two channels	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across video det. load)	A1, A2	Set sweep generator output to produce 3 volts peak to peak on scope. Adjust A1 and A2 alternately for maximum gain and symmetry with the 45.75MC marker positioned as shown in Fig. 1. The 39.75MC marker can fall within ±.5MC of the specified frequency. If the desired response cannot be obtained check to see that the cores are entering their respective windings from opposite ends of coils.
2.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	"	39.75MC 41.25MC 47.75MC	"	"	A3, A4, A5, A6	Connect a clip lead from point (C) to chassis. Connect a clip lead from point (D) to point (E). Use high scope gain and adjust A3 thru A6 for MINIMUM marker amplitudes as in Fig. 2. A3 controls the 39.75MC marker, A4 controls the 41.25MC marker and A5 and A6 controls the 47.25MC marker.
3.	"	"	"	41.25MC 42.75MC 45.0MC 45.75MC	"	"	A7, A8, A9 and Mixer Plate Coil	Disconnect the clip lead from point (E) and connect to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A7 affects the low frequency side of the curve and A8 affects the high frequency side.

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and receiver terminals. Tune in a modulated TV signal and adjust the attenuator until the signal is below the limiting level of the 6BN6 (V6) as evidenced by a hiss similar to super regeneration in the sound. Adjust A10, A11, A12 and A13 for maximum sound and best quality. Adjust the buzz control (R12) for MINIMUM buzz. If the hiss disappears during alignment, further reduce the signal until the hiss returns.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

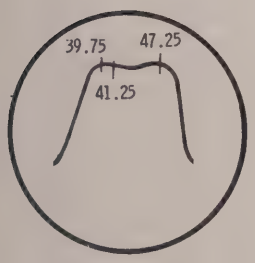


FIG.1

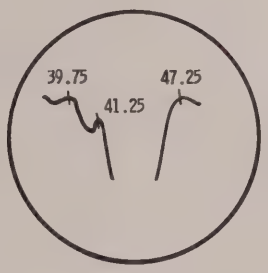


FIG.2

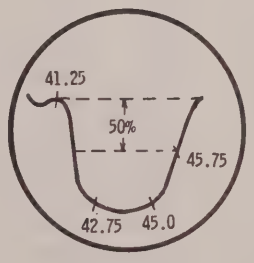


FIG.3

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R, A4012H, R (Ch. 19A30, Q, U) -

FOLDER 4

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp.	6BZ6	
V2	2nd Video IF Amp.	6BZ6	
V3	3rd Video IF Amp.	6DK6	6BZ6 *
V4	Video Output-AGC Keying	6EB8	
V5	Sound IF Amp	6AL8	
V6	Audio Det	6BN8	
V7	Audio Output	6BQ6, EL84	
V8	Sync Sep.	6BY6	
V9	Vert Mult	6CQ7	
V10	Vert Output	6CK4	
V11	Horiz Phase Det - Horiz AFC	6CN7	
V12	Horiz. Osc.-Horiz. Disch.	6CQ7	
V13	Horiz. Output	6DQ6A	
V14	Damper	6AU4GT	
V15	HV Rect.	1J3	
V16	LV Rect.	5V3	5AU4 *

* Alternate.

PICTURE TUBE

ITEM No	REPLACEMENT DATA: ZENITH PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	NOTES
V17	21CXP4 34AJP4			21CXP4 ①	① "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	ZENITH PART No	AEROVOX PART No	CORNELL-DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No.
C1A	440	400	22-2971	AFH4-113-50	CD890 BRI250	FP333. 2 *TC51		Q-460 MTD-4520	R2584 *
B	280	400							
C	210	475							
D	100	50							
C2A	44	350	22-2967	AFH3-123-40	B0436	FP146 *TC70		G-270 MT-4504	R1335 *
B	240	400						T-515 MT-4504	R2618 *
C3A	210	400	22-2973	AFH3-136	C1445				
B	40	25							
C	14	350							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	10000		22-3	BPD-01	DD-103	BYA10I	DC511	5HK-SI	
C5	470	1000	22-6	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C6	6		22-2361		DD-060	C10V6C			NPO ± .5mmf
C7	12		22-2379						N75 5%
C8	12		22-2379						N75 5%
C9	1000	1000	22-17						10%
C10	.15	200	22-2147	P288N-15		CUB2P15	GEM-2015	2TM-P15	
C11	7		22-1782	NPO-SI 1	TCZ-1				
C12	7		22-2513						NPO 5%
C13	470		22-16		MD-471				10%
C14	10000		22-3	BPD-01		BYA10SI	DC511	5HK-SI	
C15	1000		22-17						10%
C16	1000		22-17						10%
C17	470		22-16		MD-471				10%
C18	330		22-2866	1469-00033	MD-331	5RST33		MS-333	10%
C19	470		22-16		MD-471				10%
C20	5		22-2990						N470 ± .25mmf
C21	7.5		22-2742						
C22	47		22-2467		DTZ-47				5%
C23	3.3		22-2343	NPO-SI 3.3	TCZ-3R3	CTA5V33C	ET-5533	5TCCB-V33	
C24	4.7		22-3041	NPO-SI 4.7	TCZ-4R7	CTA5V47C	ET-5547	5TCCB-V47	10%
C25	39		22-3043	NPO-SI 39	D6-390	CTA6Q39C		5TCC-Q39	10%
C26	80		22-3480	SI 80	D6-800	LT9Q8	UC-545	5GA-Q8	
C27	.033	400	22-2810						10%
C28	1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-301	2TM-P1	
C29	10000		22-3	BPD-01	DD-103	BYA10SI	DC511	5HK-SI	
C30	1000	1000	22-17						10%
C31	80		22-3480	SI 80	D6-800	LT9Q8	UC-545	5GA-Q8	
C32	1000	1000	22-17						10%
C33	7.5		22-2742						
C34	100		22-6	BPD-0001	DD-101	LT9T1	UC-531	5GA-T1	
C35	10		22-2721						N150 5%
C36	1000	1000	22-17						10%
C37	10000		22-3	BPD-01	DD-103	BYA10SI	DC511	5HK-SI	
C38	10000		22-3	BPD-01	DD-103	BYA10SI	DC511	5HK-SI	
C39	470	1000	22-6	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C40	4700		22-16						10%
C41	100		22-2992	N750-DI 100	DTN-100	C10TIU	NT-531 GEM-16368	5TCU-T1	N750 5%
C42	.0068	200	22-2656				GEM-16368		10%
C43	.22	200	22-2975				GEM-2022		10%
C44	10000		22-3	BPD-01	DD-103	BYA10SI	DC511	5HK-SI	
C45	.047	200	22-1778	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C46	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-301	2TM-P1	
C47	27		22-3459	SI 27	D6-270	LT9Q27	UC-5427	5GA-Q27	
C48	3300		22-11	BPD-0033	DD-332	BYA10D33	UC-5233	5HK-D33	
C49	470		22-16		MD-471				10%
C50A	4700		22-34	BPD-2X0004 7	DD-472	BYC8DD47	UC-5347	5HK-2D47	
B	4700				DD-472		UC-5347		
C51	1000	1000	22-17						10%
C52	.0068	600	22-2977				GEM-16368		10%
C53	.0068	400	22-2501				GEM-16368		10%
C54	.01	400	22-1846	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C55	.033	400	22-2635						10%
C56	.1	400	22-2061	P488N-1	DF-104	CUB4P1		4TM-P1	
C57	.047	200	22-1778	P288N-047	DF-503	CUB2S47		2TM-S47	
C58	.033	400	22-2635						10%
C59A	100		22-22	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
B	100			BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C60	4700		22-14						10%
C61	4700		22-14						10%
C62	1000	1000	22-17						10%
C63	.047	200	22-1778	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C64	.1	200	22-1777	P288N-1	DF-104	CUB2P1	GEM-301	2TM-P1	
C65	680		22-3668	1469-00068	MD-681	1R5T68		MS-368	10%
C66	1100		22-3859	1464-0011		1R5D11		MS-211	
C67	1500		22-2689	BPD-0015	DD-152	1W5D15	MC256	1FM-215	
C68	4700		22-14						10%
C69A	1500		22-23	BPD-2X0015	DD2-152	BYC6DD15	DCD6215	5HK-2D15	
B	1500								
C70	.015	600							10% ①
C71	.1	600	22-1841	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C72	82	2000							5%
C73	75	6000	22-2954						10%
C74	45	4000	22-2858						10%

① Some versions may use .01mfd 600V 10% in this application (Part #22-1784).

PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: ZENITH PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	63-4010					Volume, Tap ⑤ 1meg
B	Switch							
R2A	3meg	½	63-4013	B-84	A47-3meg-S	QU-140	TA36L	Bass
B	Shaft	½		Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	63-4014	B-70	A47-1meg-Z	QU-137	TA35A	Treble
B	Shaft	½		Not Req.	FS-3	Not Req.	Not Req.	
R4	30K	½	63-4055					Contrast, Tap ⑤ 10K
R5A	250K	½	63-3572	B-50	A47-250K-S	QU-130	U46	Brightness
B	Shaft	½		Not Req.	KS8-3	Not Req.	Not Req.	
R8A	1.5meg	½	63-4002	B-742	A47-1.5meg-S	QU-138	TA38L	Vert. Hold
B	Shaft	½		Not Req.	KS8-3	Not Req.	Not Req.	
R7A	150Ω	½	63-2920	AB-6	A47-150-S	BU-109	PTA82L	Vert. Lin.
B	Shaft	½		AK-1	FK8-1/4	SK2	Not Req.	
R9A	7.5meg	½	63-3919	AB-89	A47-7.5meg-S	BU-142	PTA86L	Vert. Size
B	Shaft	½		AK-1	FK8-1/4	SK2	Not Req.	
R9A	20K	½	63-4021	AB-22	A47-20K-S	BU-119	U26	AGC Delay
B	Shaft	½		AK-1	FK8-1/4	SK2	Not Req.	
R10A	3meg	½	63-4026	AB-84	A47-3meg-S	BU-140	TA39L	Focus
B	Shaft	½		AK-1	FK8-1/4	SK2	Not Req.	
R11A	5meg	½	63-4012	AB-88	A47-5meg-Z	BU-141	PTA56L	Fringe Lock
B	Shaft	½		AK-1	FK8-1/4	TM1	Not Req.	
R12	750Ω	2(WW)	63-3284		39-800-50			Buss

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	ZENITH PART No.	NOTES
R13	3 3meg		63-1933	
R14	22K		63-2946	
R15	1000Ω		63-1786	
R16	22K		63-2948	
R17	56Ω		63-1733	
R18	1500Ω		63-1792	
R19	120K		63-1873	
R20	120K		63-1873	
R21	33K		63-4008	
R22	22Ω		63-1715	
R23	220Ω		63-1758	
R24	220Ω		63-1758	
R25	8200Ω	4	63-3602	
R26	120Ω		63-1747	
R27	2700Ω		63-1803	
R28	7500Ω	4	63-4055	
R29	3900Ω		63-1810	
R30	330Ω		63-1785	
R31	22K	2	63-1586	
R32	15Ω		63-1708	
R33	150K		63-1878	
R34	220K		63-1884	
R35	27K		63-1845	
R36	56K 5%		63-1858	
R37	150K		63-1880	
R38	470K	1	63-2149	
R39	4700Ω		63-1813	
R40	47K		63-1855	
R41	100K		63-1869	
R42	3 3meg		63-1932	
R43	470K		63-1898	
R44	1.5meg		63-1918	
R45	68K		63-1862	
R46	180K		63-1880	
R47	100K		63-1870	
R48	10K		63-1827	
R49	390K		63-1894	
R50	680Ω		63-1779	
R51	470Ω		63-1772	
R52	2.2meg		63-1926	
R53	27K	2	63-947	
R54	10K		63-1828	
R55	100K		63-1869	
R56	3300Ω		63-1808	
R57	4700Ω		63-1813	
R58	150K		63-1877	
R59	470Ω	1	63-2398	
R60	220Ω		63-1757	
R61	470K		63-1898	
R62	15K		63-1834	
R63	470K		63-1897	
R64	12meg		63-1957	
R65	100K		63-1870	
R66	39K		63-1852	
R67	47K	2	63-1857	
R68	100K		63-1869	
R69	5600Ω		63-1817	
R70	15K		63-1834	
R71	15K		63-1834	
R72	6800Ω		63-1820	
R73	270K	1	63-3189	
R74	1000Ω		63-1786	
R75	1meg		63-1911	
R76	270K		63-1887	
R77	18K		63-1838	
R78	220Ω		63-1758	
R79	1. 2meg		63-1915	
R80	330Ω	1	63-2296	
R81	8200Ω		63-1824	
R82	560Ω	1	63-2348	
R83	560Ω		63-1775	
R84	560Ω		63-1775	
R85	100K		63-1869	
R86	100K		63-1869	
R87	18K		63-1838	
R88	1meg		63-1911	
R89	100K		63-1869	
R90	68K		63-1862	
R91	390Ω		63-1788	
R92	10K	2	63-2145	
R93	22K		63-1842	
R94	39K		63-1852	
R95	180K	1	63-2313	
R96	100Ω		63-1744	
R97	1meg		63-1912	
R98	100Ω		63-1744	
R99	8200Ω	4	63-3602	
R100	56K	2	63-2341	
R101	150K		63-1876	
R102	1000Ω		63-1786	
R103	6.8		63-2305	
R104	22K	1	63-1055	
R105	230K		63-3607	
R106	10K		63-2382	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No
T1	117V	580VCT	5V	95-1561						
	⑨ 2A	⑨ .290A	⑨ 3A							
	SEC. 3	SEC. 4	SEC. 5							
	6 3V									
	⑨10. 4A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	ZENITH PART No.	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	95-1558	Z1900 ①	A-3821	V316 ②	A-8146 ②		Y-40 &	
T3A	Yoke-Horiz. (13MH)	95-1560	DF-606	MFD-91	Y90F12/47	DY-13A	Y-39	NW4 ③	
B	(90°)-Vert. (42MH)		③④	③④	③④	③④	⑤		
M6	Rear Cover & Centering Device	S-23237						YC-1	
T4	Horiz. Output	S-41988							

① Connect as autoformer. Use 7 to 1 turns ratio.
② Cut and tape blanking lead.
③ Connect same as original.
④ Cut and form a piece of .010 gauge fish paper inside the yoke itself and support with an acetate cement to provide an insulation between the width sleeve and the yoke proper. Use original rear cover and centering device.
⑤ Connect yoke terminal #2 to terminal #3 of T4; connect yoke terminals #1 and #3 to resistor R102. Connect yoke terminal #7 to terminal #1 of T4.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: ZENITH PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T5	7000Ω	3-4Ω	95-1557	22112	A-3020 ①	AU-606	A-3878 ①	28848	S-9X	① Drill new mounting hole.

SPEAKER

ITEM No	TYPE: SIZE	FIELD	V C IMP	REPLACEMENT DATA: ZENITH PART No.	QUAM PART No.	NOTES
SP1	8"	PM	8-8Ω	49-827 ①	8A12E6.4	① Used in Models A2329R, RU, A2330E, EU, R, RU.
SP2	8"	PM	8-8Ω	49-813 ②		② Used in Models A2329R. RU
				49-833 ③		③ Used in Models A2360M, MU, R, RU, A3010E, R, A4007E, R
				49-830 ④		④ Used in Models A3013R, A4012R, R
				49-831 ⑤		⑤ Used in Models A3011, E, Y
				8-23839⑥		⑥ Used in all Models except A2329R, RU, A2330E, EU, R, RU

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1A	1st. Video IF	S-43442					
B	41.25MC Trap						
L2A	47.25MC Trap	S-41883					
B	39.75MC Trap						
L3A	2nd. Video IF	S-43443					
B	47.25MC Trap						
L4	3rd. Video IF	S-41891	17-4523 *	TV-130 *	6234 *	VF-3 *	
L5	4th. Video IF	S-41898					Includes caps & M3
L6	Series Peaking Coil	S-41879	19-3075	TV-186	6172		8i Microhenries
L7	Shunt Peaking Coil	S-43219	19-4301 ▲	TV-197 ▲	6154 ▲		206 Microhenries, wound on 10K resistor ①
L8	RF Choke	S-21888	19-1004	BC-566	4610		6.7 Microhenries
L9A	4.5MC Trap	S-42153		TV-120			
B	1st. Sound IF						
L10	Shunt Peaking Coil	S-18011	19-3250	TV-185	6181	VF-6	250 Microhenries
L11	Series Peaking Coil	S-41880	19-3160	TV-196	6120	VF-5	195 Microhenries
L12	2nd. Sound IF	S-42054		TV-149			
L13	Quadrature Coil	S-19020		TV-121			
L14	RF Choke	S-22777	19-1005	BC-566	4613		10 Microhenries

* Drill new mounting holes.
▲ Parallel with 10K resistor.
① Some versions may use Part #8-19360 wound on 1500Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	SEC.	REPLACEMENT DATA: ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L15	165Ω *		S-19743	19-1577	TV-169	6334		HS-8	*Tapped ⑨ 68Ω

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
L16	.290A	52Ω	1.4 Hy.	95-1559	C5037①	C-2996 ①		C-2326 ①	26C44	C-25X

① Drill new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	N	4/10A 125V 8/9	136-37	62-19	333.400 (4/10A-125V 8/9)	346009	N 4/10	HN 3/10 to 1/2

CRYSTAL DIODES

ITEM No.	OBIG. TYPE	REPLACEMENT DATA: ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	1N64	103-23	1N64	1N60	Video Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Pilot Lamp	100-198	#47
M4	Tuner	175-108	VHF Ch. 19A30, Q
	Tuner	175-107	VHF Ch. 19A30U
	Tuner	175-4	UHF Ch. 19A30, U
M5	Width Sleeve		
M6	Centering Device	S-23237	Includes yoke rear cover
M7	Magnet	S-41995	Anti-Pin Cushion (2 used)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO	DESCRIPTION
Safety Glass	192-239	Models A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU
Safety Glass	192-243	Models A3010E, R, A3011, E, Y, A3013R
Safety Glass	192-244	Models A4007E, R, A4012R, R
Knob	46-1834	On-Off-Volume, Models A2329R, A2330E, R, A2360M, R, A4007E, R, A4012R, R
Knob	46-1826	On-Off-Volume, Models A2329RU, A2330RU, RU, A2360MU, RU
Knob	S-43493	On-Off-Volume, Models A3010E, R, A3011, E, Y, A3013R
Knob	S-41960	Channel Selector, Models A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A4007E, R, A4012E, R
Knob	S-42909	Channel Selector, Models A3010E, R, A3011, E, Y, A3013R
Knob	S-22863	Fine Tuning, Models A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A4007E, R, A4012R, R
Knob	S-42039	Fine Tuning, Models A3010E, R, A3011, E, Y, A3013R
Knob	S-42058	UHF Dial, Models A2329RU, A2330RU, RU, A2360MU, RU

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R, A4012R, R (Ch. 19A30, Q, U)

FOLDER 4

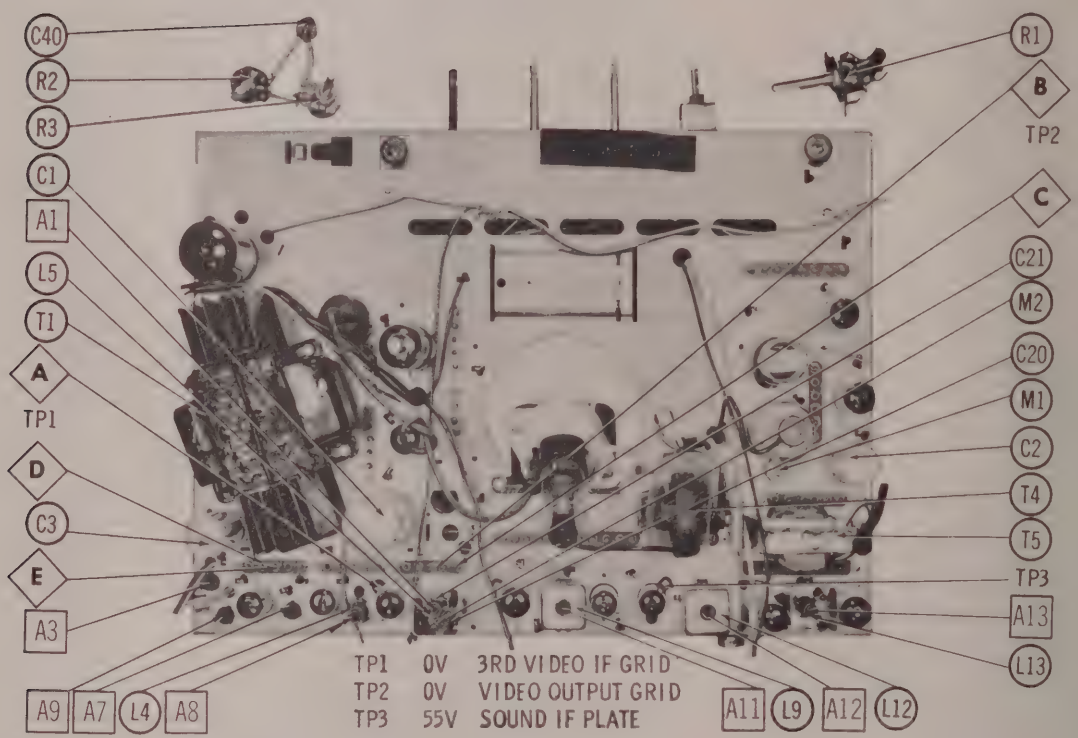
PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS (cont)

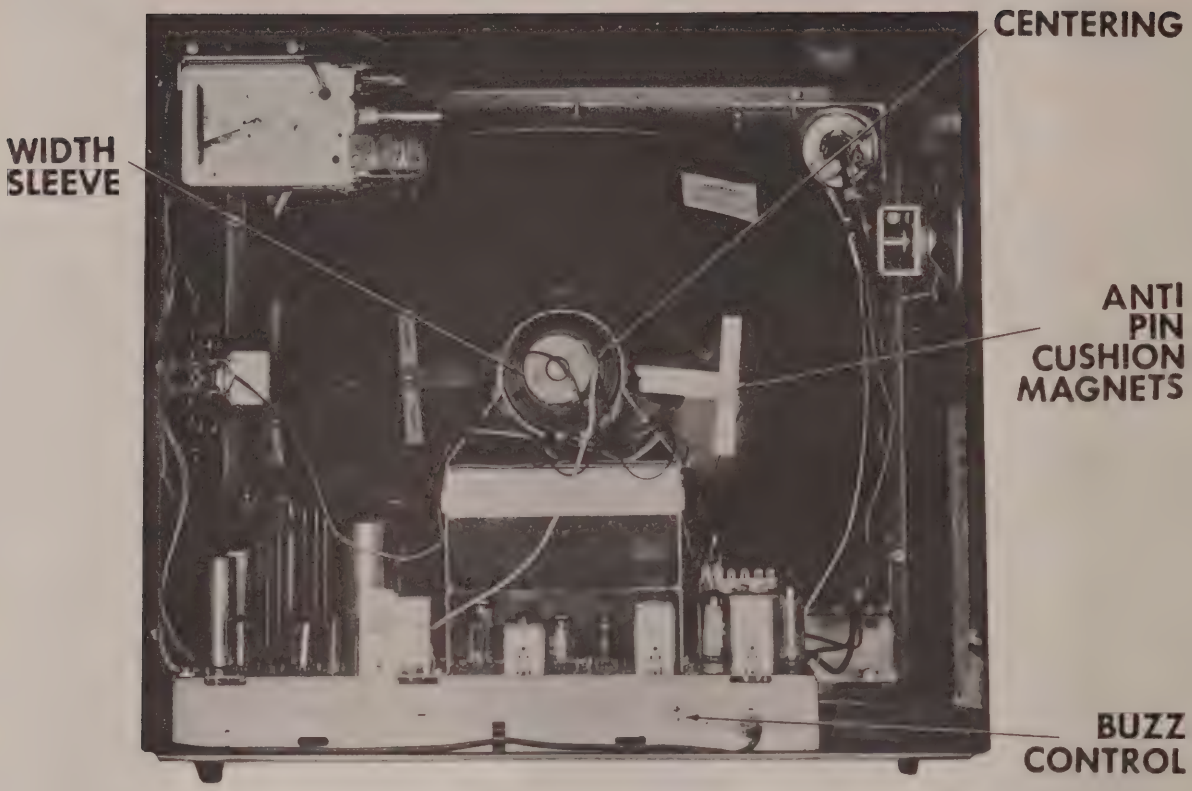
NAME	PART NO.	DESCRIPTION
Knob	46-1118	Horiz. Hold
Knob	S-41485	Brightness, Vert. Hold
Knob	S-41482	Contrast, Models A2329R, RU, A2330E, EU, R, RU, A2360R, RU, A3010E, R, A3011, E, Y, A3013H, A4007E, R, A4012H, R
Knob	S-41946	Contrast, Models A2360M, MU
Knob	46-1807	Tone (2 used)
Cabinet	14-2252	Models A2329R, RU
Cabinet	14-2245	Models A2330E, EU
Cabinet	14-2244	Models A2330R, RU
Cabinet	14-2367M	Models A2360M, MU
Cabinet	14-2367R	Models A2360R, RU
Cabinet	14-2289E	Model A3010E
Cabinet	14-2289R	Model A3010R
Cabinet	14-2291	Model A3011
Cabinet	14-2291E	Model A3011E
Cabinet	14-2291Y	Model A3011Y
Cabinet	14-2303H	Model A3013H
Cabinet	14-2302E	Model A4007E
Cabinet	14-2302R	Model A4007R
Cabinet	14-2376H	Model A4012H
Cabinet	14-2376R	Model A4012R

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



CHASSIS TOP VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast controls for a normal picture.

Turn the Horizontal Hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BK7B	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6EA8	6U8 *

* Alternate.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	40		22-2511		D6-400				5%
C202	40		22-2511		D6-400				5%
C203	40		22-2511		D6-400				5%
C204	40		22-2511		D6-400				5%
C205	1000		22-3018	EF-001	MFT-1000			503C-D1	
C206	800		22-2331	BPD-0008	DD-801	L10T8		5GA-T8	
C207	2.4		22-2596						5%
C208	2.5-6		22-2221						
C209	1000		22-3018	EF-001	MFT-1000			503C-D1	
C210	.85-2.3		22-2453						
C211	800		22-2331	BPD-0008	DD-801	L10T8		5GA-T8	
C212	1000		22-3018	EF-001	MFT-1000			503C-D1	
C213	120		22-2591		DTN-120				5%
C214	19		22-2406						2.5%
C125	.6-3		22-2504						
C216	1000		22-3018	EF-001	MFT-1000			503C-D1	
C217	2		22-2434						10%
C218	3.4		22-2592						±.25mmf
C219	5.6		22-2499						±.25mmf
C220	1000		22-3018	EF-001	MFT-1000			503C-D1	
C221	800		22-2577						
C222									
C223	2		22-2585						±.5mmf

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

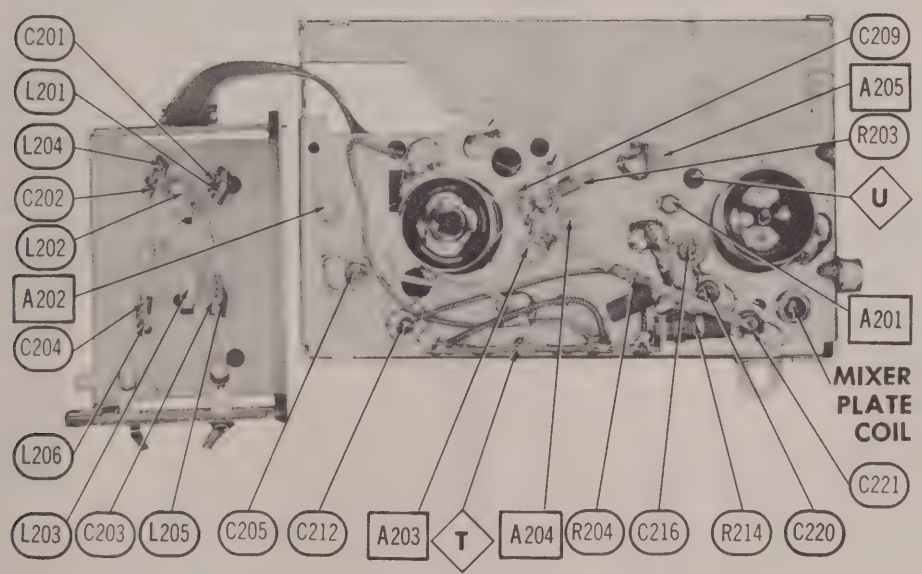
ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R201	22K			
R202	47K			
R203	220K			
R204	220K			
R205	4700Ω			
R206	10K			
R207	470K			

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R208	470Ω			
R209	68K			
R210	68K			
R211	10K			
R212	2200Ω			
R213	10K	2	63-3170	
R214	470Ω	1	63-2398	

COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES
L201	IF Trap Coil	20-490	
L202	IF Trap Coil	20-505	
L203	IF Trap Coil	20-505	
L204	IF Trap Coil	20-490	
L205	IF Trap Coil	20-490	
L206	IF Trap Coil	20-490	
L207	Neut. Coil	20-431	

ITEM No.	USE	ZENITH PART No.	NOTES
L208	RF Coil	20-537	
L209	Mixer Grid Coil	20-538	
L210	RF Choke	S-18859	
L211	Osc. Coil	20-541	
L212	Mixer Plate Coil	S-22702	



RF TUNER—TOP VIEW

ZENITH MODELS A2329R, RU, A2330E, EU, R, RU, A2360M, MU, R, RU, A3010E, R, A3011, E, Y, A3012H, R, A3013H, A3014H, R, A4007E, R, A4012H, R (Ch. 19A30, Q, U)

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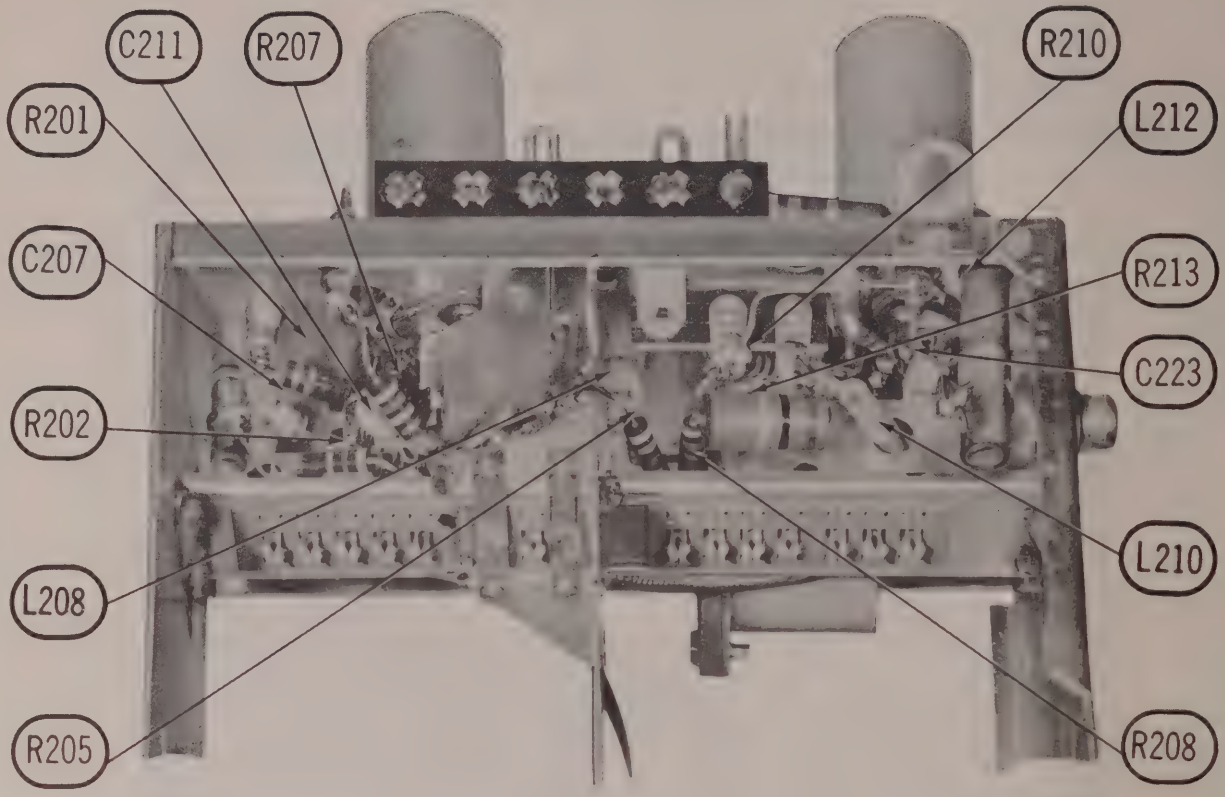
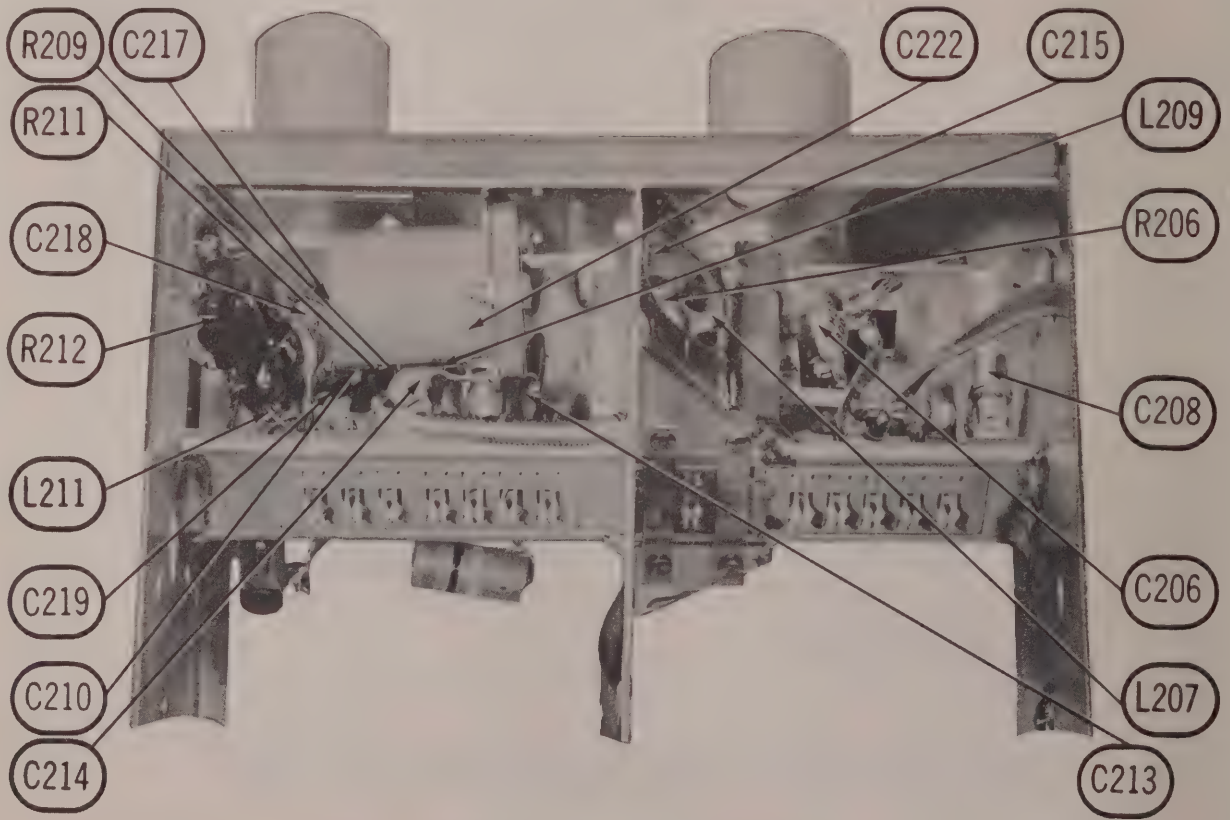


RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.7meg	1500Ω	.1Ω	0Ω	††240Ω	††240Ω	0Ω		
V2	6BZ6	60K	††22Ω	.1Ω	0Ω	†220Ω	†220Ω	INF		
V3	6BK6	.1Ω	120Ω	.1Ω	0Ω	†8200Ω	†8200Ω	0Ω		
V4	6EB8	• 16Ω	4700Ω	1.1meg	.1Ω	0Ω	15Ω	2700Ω	†18K	†5500Ω
V5	6AU6	100K	0Ω	.1Ω	0Ω	†37K	†37K	0Ω		
V6	6BN6	• 400Ω	.2Ω	.1Ω	0Ω	†27K	4.7Ω	†390K		
V7	6BQ5/ EL84	NC	13K	220Ω	0Ω	.1Ω	NC	†1100Ω	NC	†470Ω
V8	6BY6	3meg	0Ω	.1Ω	0Ω	†90K	†47K	†12meg		
V9	6CG7	• ‡2meg	•1.4meg	0Ω	0Ω	.1Ω	‡330K	6500Ω	1000Ω	NC
V10	6CK4	NC	0Ω	1.2meg	NC	†750Ω	NC	.1Ω	• 820Ω	
V11	6CN7	0Ω	200K	100K	0Ω	.1Ω	390Ω	1.2meg	†68K	NC
V12	6CG7	‡230K	39K	0Ω	0Ω	.1Ω	†0Ω	32K	10K	NC
V13	6DQ6A	TP	.1Ω	TP	†8300Ω	1meg	TP	0Ω	0Ω	TOP CAP ‡11Ω
V14	6AU4GT	TP	NC	¶200K	NC	†.9Ω	NC	0Ω	.1Ω	
V15	1J3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡281Ω
V16	5V3	NC	¶20K	TP	27Ω	NC	25Ω	TP	¶20K	
V17	21CXP4	.1Ω	23K	Pin 6 • ‡460K	Pin 10 50K	Pin 11 • 180K	Pin 12 0Ω			
V201	6BK7B	†950Ω	110K	120K	0Ω	.1Ω	120K	4.5meg	0Ω	0Ω
V202	6EA8	†10K	68K	†68K	0Ω	.1Ω	†470Ω	0Ω	2200Ω	12K
ITEM	TYPE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

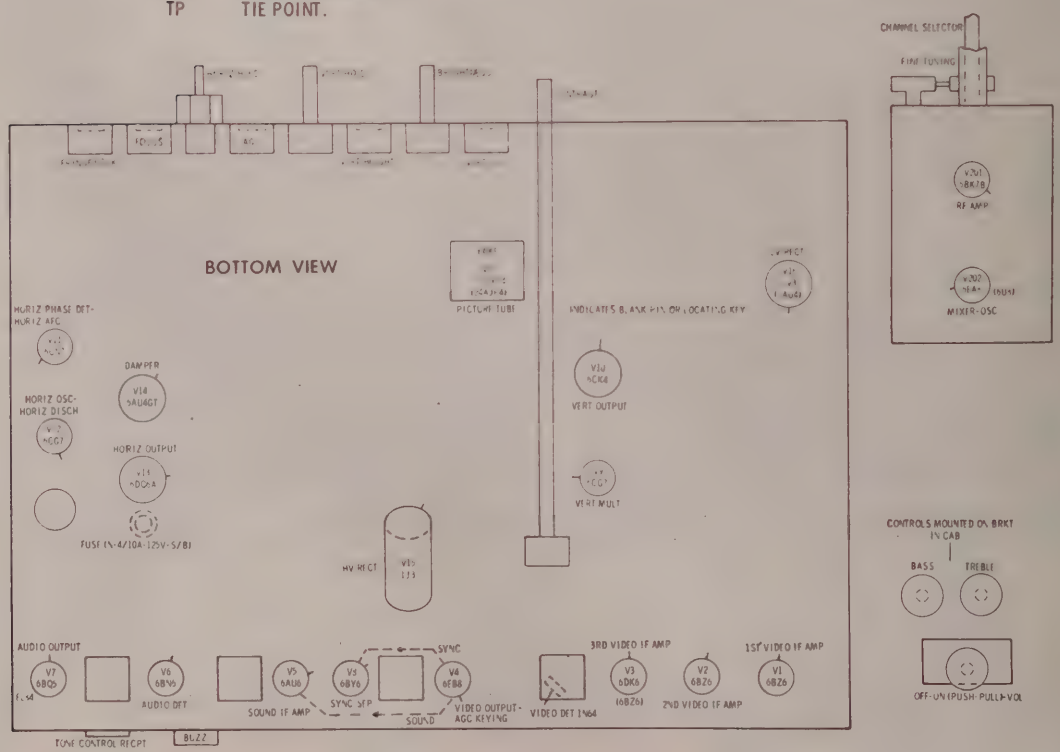
† MEASURED FROM 270V SOURCE.

‡ MEASURED FROM PIN 3 OF V14.

†† MEASURED FROM PIN 7 OF V2.

NC NO CONNECTION.

TP TIE POINT.



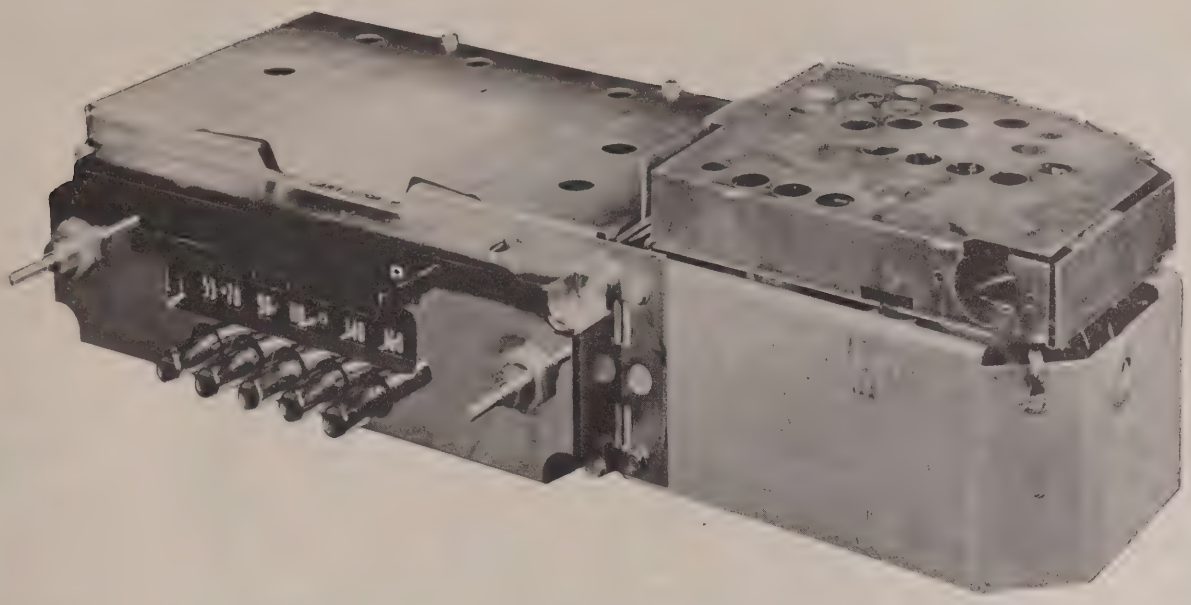
TUBE PLACEMENT CHART

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

BUICK
MODEL 981903

BUICK
MODEL 981903



TRADE NAME	Buick Model 981903 (For 1958 Buick Automobiles)
MANUFACTURER	Delco Radio Div., G.M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Eight)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12BF6 Det.-AVC-AF Amp., 12AU7 Trigger, (2) 12V6GT Output, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	550-1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Sensitivity control to maximum (Position 1).
Tone control to treble.
To tune to high frequency stop, place a .070" feeler gauge in slot against high frequency stop. Depress station selector bar and allow the treadle arm to run against feeler gauge. Turn radio off, and then on. Remove feeler gauge.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400~ Mod)	High Freq. End Stop.	DC probe to point (A). Common to chassis.	A1, A2, A3	Adjust for maximum deflection.
2.	"	"	"	"	"	A4	Adjust for MINIMUM deflection.
3.	82mmf	High side to antenna receptacle. Low side to chassis.	1615KC	"	"	A6, A7, A8	Check setting of osc. coil core (A5). Rear of core should be 1 5/8" from mounting end of coil form. Adjust for maximum deflection.
4.	"	"	600KC	Tune to 600KC signal	"	A9, A10	Adjust for maximum deflection.
5.	"	"	1615KC	Tune to 1615KC signal	"	A7, A8	"
6.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A8 for maximum output.						

POINTER ADJUSTMENT

With radio tuned to a 1100KC signal adjust pointer adjustment so that pointer coincides with 1100KC mark on dial.

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton to the left and out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining pushbuttons.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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H583

SET 406 FOLDER 5

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det.-AVC-AF Amp.	12BF6	
V5	Trigger	12AU7	
V6	Output	12V6GT	
V7	Output	12V6GT	
V8	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6322	AFH3-120	C0990	FP345.8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

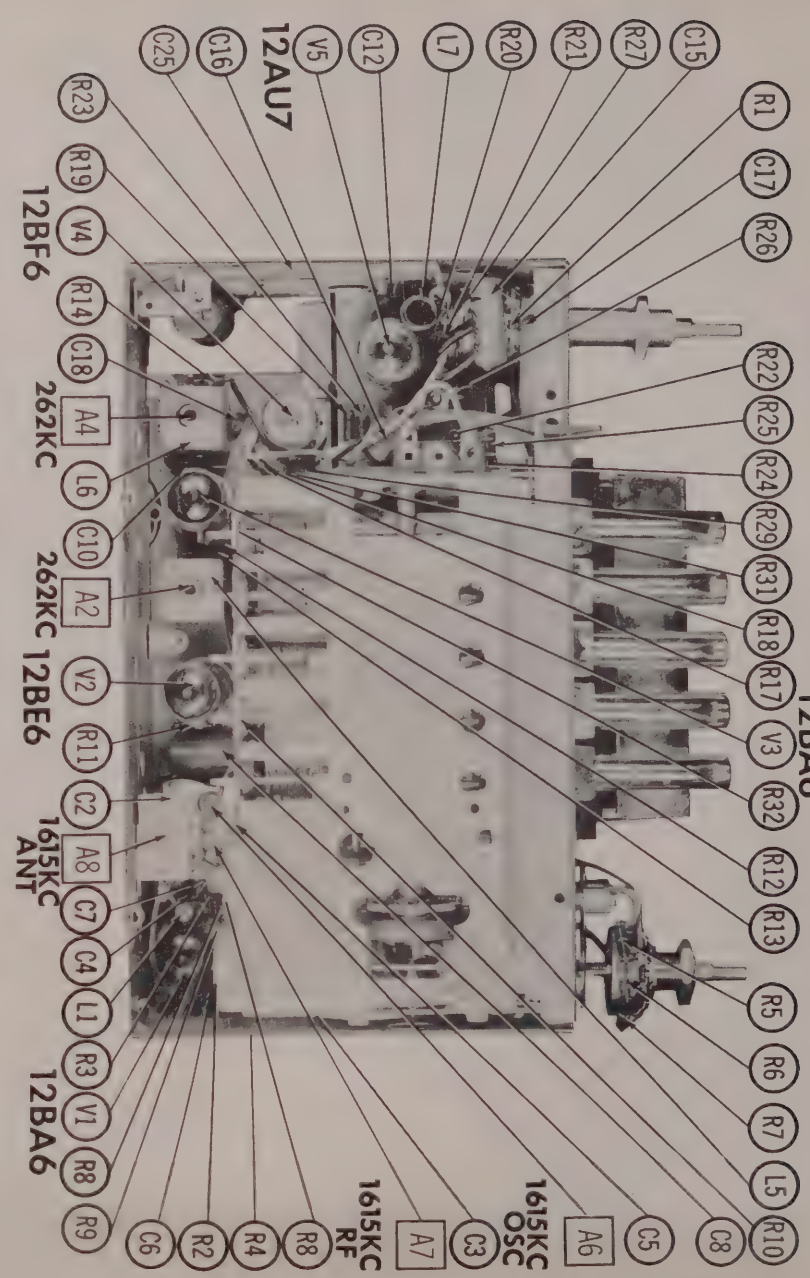
ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2A			7269079						
B									
C3	.047	200	6612	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C4	68		6369	SI 68	DD-680	L10Q68	UC-5468	5GA-Q68	
C5A			7268828						
B									
C									
D									
C6	.047	100	6612	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C7	39		6366	BPD-000039	DD-390	L10Q39	UC-5439	5GA-Q39	
C8	.1	400	6613	P488N-1	DF-104	CUB4P1	GEM 401	4TM-P1	
C9	200		7270129	1469-0002	DTZ-201	22R5T2	MCE237	MS-32	5%
C10	100		1219498	1469-0001	DTZ-100	22R5T1	MCE235	MS-31	5%
C11	100		1219498	1469-0001	DTZ-100	22R5T1	MCE235	MS-31	5%
C12	2000		6352	BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C13	120		6372	1468-00012	DD-121	5W5T12		1FM-312	
C14	100		7265995	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C15	.004	600	6630	P688N-004	D6-402	CUB6D4	GEM-624	6TM-D4	
C16	.002	600	6628	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C17	.015	600	7237719	P688N-015		CUB6S15	GEM-6115	6TM-S15	
C18	220		6375	BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C19	.2	400	6614	P488N-2		CUB6P2	GEM-402	4TM-P2	
C20	.003	1000	6563	P1088N-003	DD-302	CUB10D3	GEM-1023	10TM-D3	
C21	.007	1600	6567	VBC-24		CUB16D7	GEM-1627	MB-D7	
C22	.1	200	6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C23	.47	100	6692	P288N-47		CUB2P47	GEM-2047	2TM-P47	
C24	.47	100	6692	P288N-47		CUB2P47	GEM-2047	2TM-P47	
C25			1221054						

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	7271329	F1-41 ‡	RTV-657-C †		■ UE3818S	Tone
B	1meg	½		R2-58				Volume, Tap ② 250K
C	Switch			KB-4 or KR-4*				On-Off

* Use KR on CRL "Red Label" controls and KB on "Blue Label" controls.
† Use XB-1 adaptor bushing.
‡ Use AK-28 adaptor bushing.
■ "STA-LOC" Equivalent: FL55A, OS1625, RU16T254, IS2250, US-41

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	DELCO PART No.	NOTES
R2	2.2meg		1239	
R3	10K	1	1174	
R4	100Ω		1113	
R5	1200Ω		1126	
R6	22K		1215	
R7	150K		1225	
R8	330K		1229	
R9	12K	2	1276	
R10	100Ω		1113	
R11	22K		1215	
R12	10Ω		1101	
R13	150Ω		1115	
R14	100K		1223	
R15	820K 5%		1219491	
R16	180K 5%		7271550	
R17	1.5meg 5%		1219492	
R18	1.5meg		1237	
R19	1meg		1235	
R20	120K		1224	
R21	5.6meg		1244	
R22	6800Ω 5%	1	7266367	
R23	910Ω 5%		7266033	Note 1
R24	6800Ω	1	1172	
R25	47K	1	1259	
R26	47K 5%	1	1220188	
R27	68K		1221	
R28	820K		1234	
R29	1meg		1235	
R30	47K	1	1259	
R31	1000Ω 5%		1220176	
R32	3300Ω 5%		1220173	
R33	360Ω 10%	4(WW)	7234563	
R34	1800Ω	7(WW)		Note 2
R35	15K		1253	

Note 1. Alternate values: 750Ω 5% (Part #7266320), 820Ω 5% (Part #7266231). Replace with original value.
Note 2. Replace with 2700Ω 2W (Part #1204) and 5600Ω 1W (Part #1171) in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6V @2.33A	500VCT @.070A		7269118				P-6497		

TRANSFORMER (DRIVER)

ITEM No.	DC RESISTANCE PRI.	DC RESISTANCE SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	1800Ω CT		1220902			A-4421			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	8300Ω CT	3-4Ω	7269116	Z1011 ①	A-2901 ②	AU-606 ①	A-4430	22S56 ①	S-55X ①	① Use original channel frame. ② Drill new mounting holes.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA DELCO PART No.	QUAM PART No.	NOTES
SP1	6" x 9"	PM	3-4Ω	7269084	69A2	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DELCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	7255738	19-1004	BC-565	4610		6.5 Microhenries
L2	Ant. Coil	1221138					
L3	RF Coil	1221138					
L4	Osc. Coil	1221139					
L5	Input IF	1220990	16-6756	BC-317	13-PH1		
L6	Output IF	1220992					
L7	"A" Lead Choke	7241708					1.4 Microhenries
L8	Hash Choke	1221077					

CHASSIS—BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12. 6 VDC	115v	8555	6330	G1602/G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DELCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		7½A 32V	455640					

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Lamp	456985	#1891
M4	Lamp	456985	#1891
M5	Switch	7268030	Power Solenoid, Treadle Solenoid
M6	Switch	7269292	Station Selector
M7	Switch	7268938	Sensitivity
M8	Relay	7270546	
M9	Solenoid	1221161	Treadle
M10	Solenoid	1221160	Power
M11	Switch	7269471	Foot
M12	Speaker Assy.	Model 981905	Rear Seat. Includes 6" x 9" speaker (Part #7267685), fader control (Part #7270865), knob (Part #1174606), speaker grille (Part #7271698).

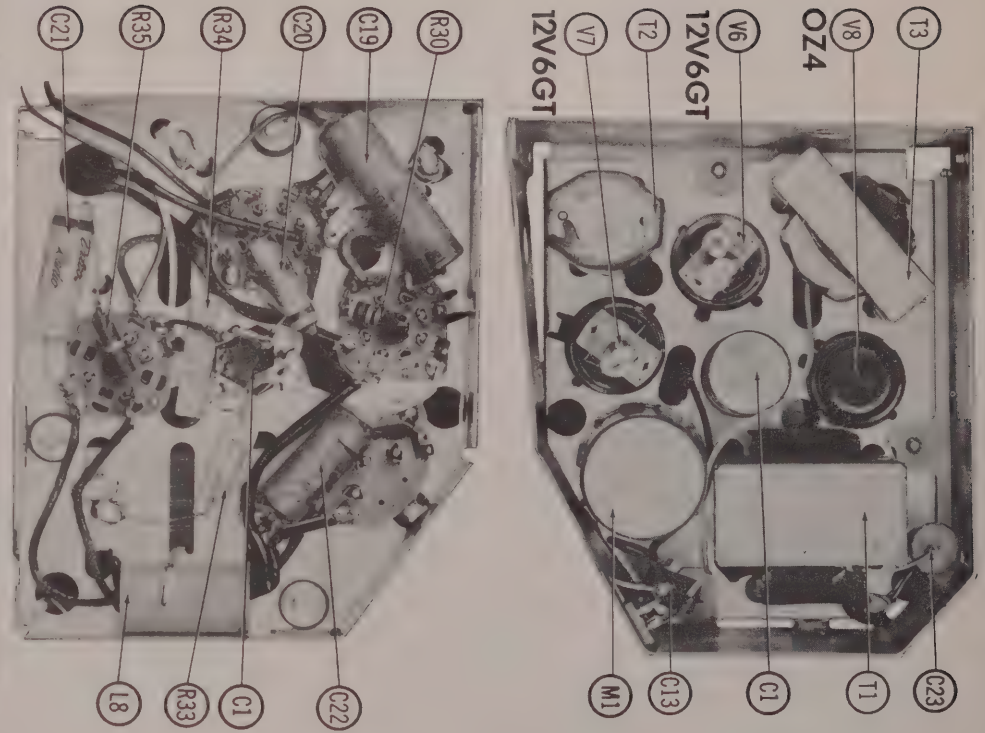
CABINETS & CABINET PARTS

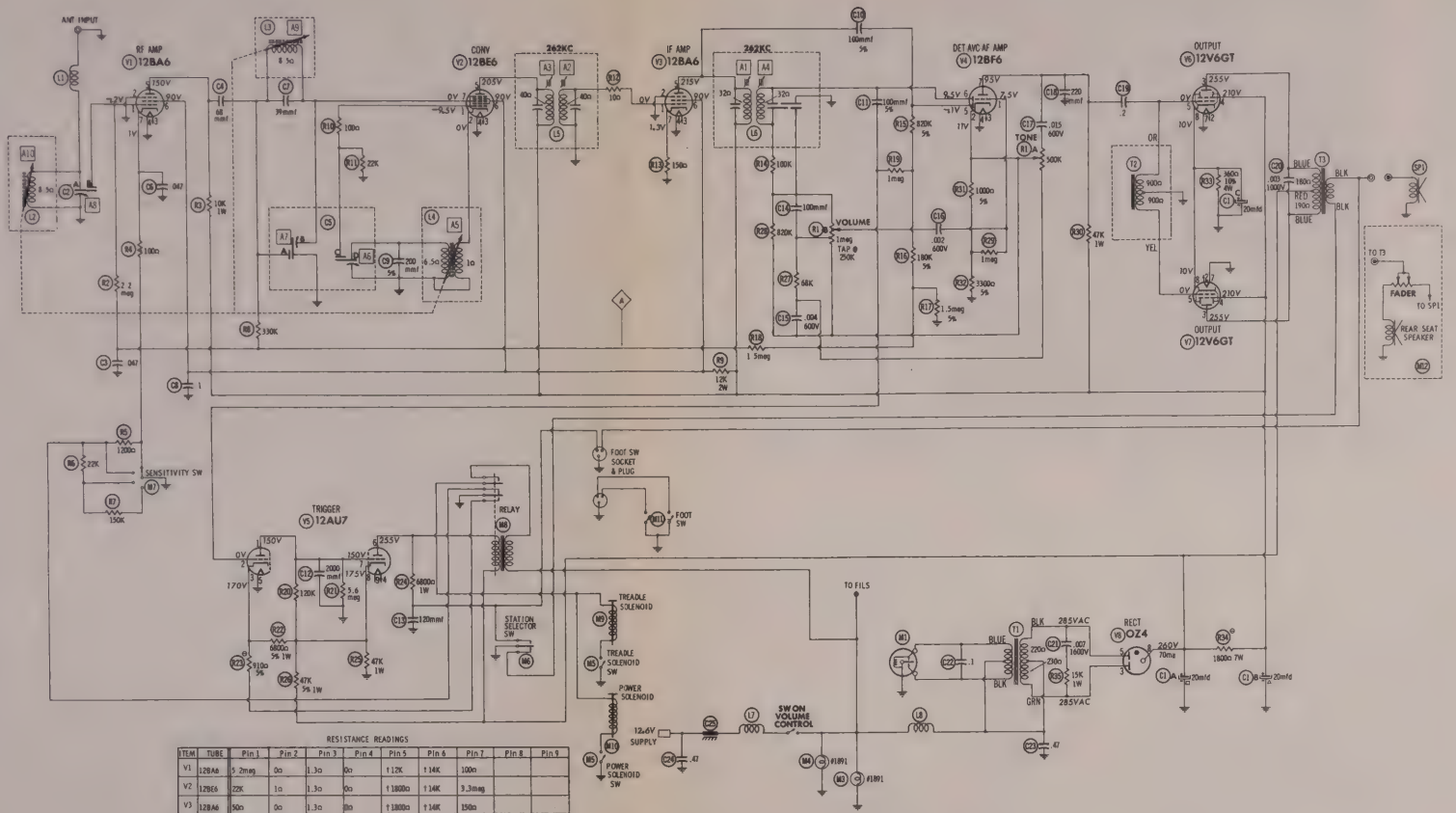
NAME	PART NO.	DESCRIPTION
Knob	1174606	Control
Knob	1175236	Tone
Knob	1175237	Sensitivity
Pushbutton	1221055	5 Used. (Includes Front Bearing, Plate and Slides)
Pointer Assy.	1221057	
Dial	7268943	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661

POWER SUPPLY





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	5.2meg	0Ω	1.3Ω	0Ω	†12K	†14K	100Ω		
V2	12BE6	22K	1Ω	1.3Ω	0Ω	†1800Ω	†14K	3.3meg		
V3	12BA6	50Ω	0Ω	1.3Ω	0Ω	†1800Ω	†14K	150Ω		
V4	12BF6	1meg	4300Ω	1.3Ω	0Ω	2.5meg	480K	†49K		
V5	12AU7	†140K	1.6meg	†50K	1.3Ω	0Ω	†2000Ω	†150K	†45K	.7Ω
V6	12V6GT	TP	1.3Ω	†180Ω	†1800Ω	900Ω	TP	0Ω	360Ω	
V7	12V6GT	NC	1.3Ω	†190Ω	†1800Ω	900Ω	TP	0Ω	360Ω	
V8	OZ4	0Ω	NC	230Ω	NC	220Ω	NC	TP	20K(MIN)	

† MEASURED FROM PIN 8 OF V8.
TP TIE POINT.
NC NO CONNECTION.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

COLUMBIA RECORDS
MODEL 523

COLUMBIA RECORDS
MODEL 523

COLUMBIA RECORDS
MODEL 523

TRADE NAME	Columbia Records Model 523
MANUFACTURER	Columbia Records, 799 Seventh Ave., New York 19, N. Y.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Three)	12AX7 AF Amp. - Phase Inv., (2) 50C5 Output
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING .35 Amp. @ 117 Volts AC (32 Watts)

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE V-M 1200A—PHOTOFACT SET 353 FOLDER 16
OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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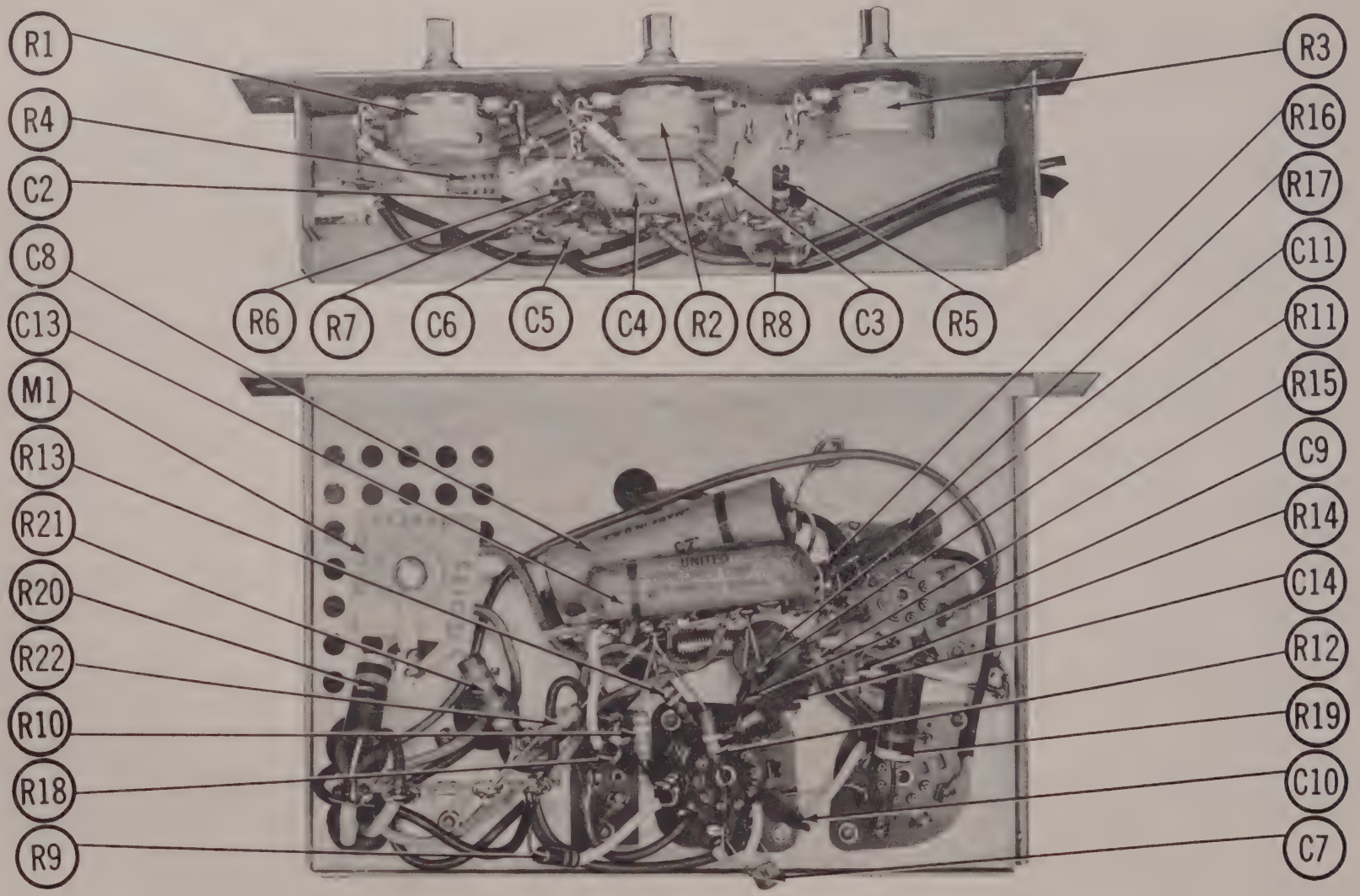


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. - Phase Inv.	12AX7	
V2	Output	50C5	
V3	Output	50C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Columbia Records PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	11B713	PRS150V804020	BBRT84215	TCT3117	TDLT-7	FMT-339	TVL-3443
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Columbia Records PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C3	270			BPD-00027	DD-271	L10T27	UC-5327	5GA-T27	
C4	680			BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	
C5	2000			BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C6	2000			BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C7	100			BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C8	.25	200		P288N-25		CUB2P25	GEM-2025	2TM-P25	
C9	210								10%
C10	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C11	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C12	.47	200		P288N-47		CUB2P47	GEM-2047	2TM-P47	
C13	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C14	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Columbia Records PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	½	9B556					Volume, Tap ② 1meg & 1.5 meg
B	Shaft							
R2A	250K	½	9B553	ABT-53	A47F1-250K	Q13-130X		Treble, Tap ② 100K
B	Shaft			AK-11	KSS-3	Not Req.		
R3A	5meg	½	9B552	B-88	A47-5meg-Z	Q13-141	U65	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Columbia Records PART No.	NOTES
R4	33K			
R5	100K 5%			
R6	100K 5%			
R7	100K 5%			
R8	1meg			
R9	330Ω			
R10	39K			
R11	6.8meg			
R12	220K			
R13	220K			
R14	220K			
R15	220K			
R16	220K			
R17	100Ω	1		
R18	10K			
R19	47Ω	2	16B404	
R20	47Ω	2	16B404	
R21	2200Ω	1		
R22	3300Ω			

PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.1	Columbia Records PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3500Ω CT	7Ω	TR119 ①							① Alternate Part #3B219
	Turns Ratio	SEC. 2								
	12	: 1								

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	Columbia Records PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	SP600 ①	6A21	① Alternate Part #1B108
SP2	6"	PM	3-4Ω	SP600 ①	6A21	② Alternate Part #1B118
SP3	2½"	PM	3-4Ω	SP200 ②	3A07	

RECTIFIER

ITEM No.	RATING CURRENT (Measured)	Columbia Records PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.087A	10B604 ①	1005A ①	RS150 ①	150 ① M150 ②	① Selenium Type ② Silicon Type

PHONO CARTRIDGE

ITEM No.	Columbia Records PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M2	T0-400-0V	118-TS	N8-1 & N8-3			

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	Columbia Records PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3	(78R. P. M.)	† CRA-55 or ♦ CRA-55D	† W-64S or ♦ W-64D	† Jewel ♦ Diamond
	(L. P.)	† CRA-55LP or ♦ CRA-55LPD	† W-64MGS or ♦ W-64MGD	

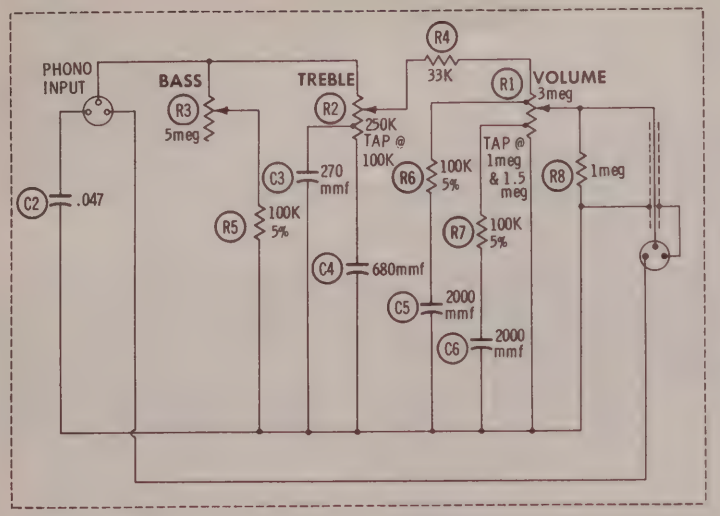
CABINETS & CABINET PARTS

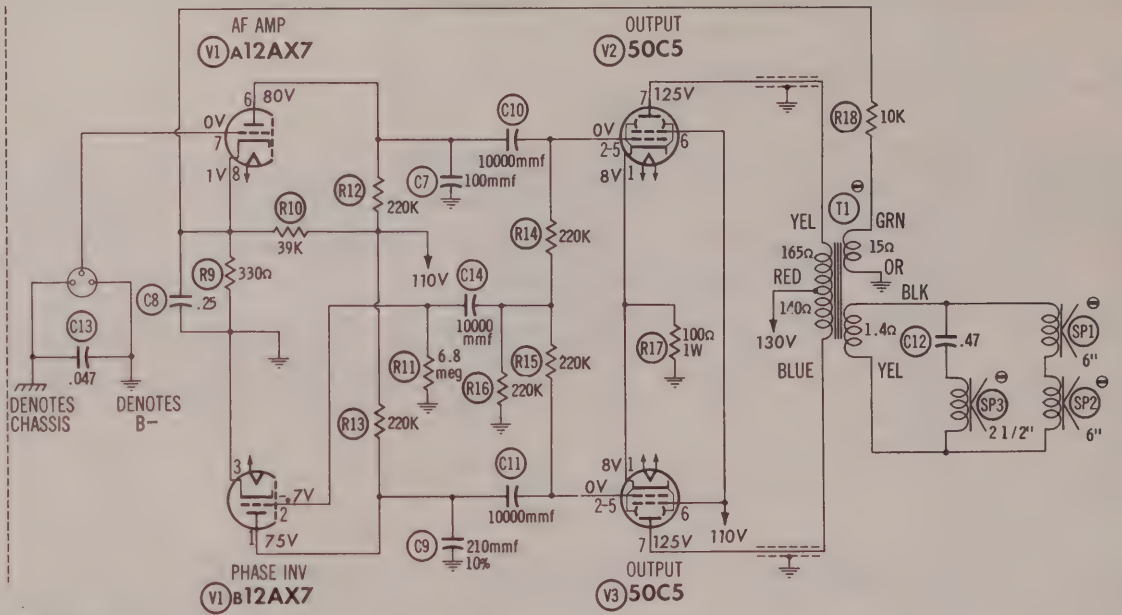
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	8B475	Volume, Bass, Treble
Cabinet	19B968	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†225K	6.8meg	0Ω	12Ω	0Ω	†225K	0Ω	300Ω	6Ω
V2	50C5	100Ω	440K	12Ω	62Ω	440K	†2200Ω	†165Ω		
V3	50C5	100Ω	440K	100Ω	109Ω	440K	†2200Ω	†140Ω		

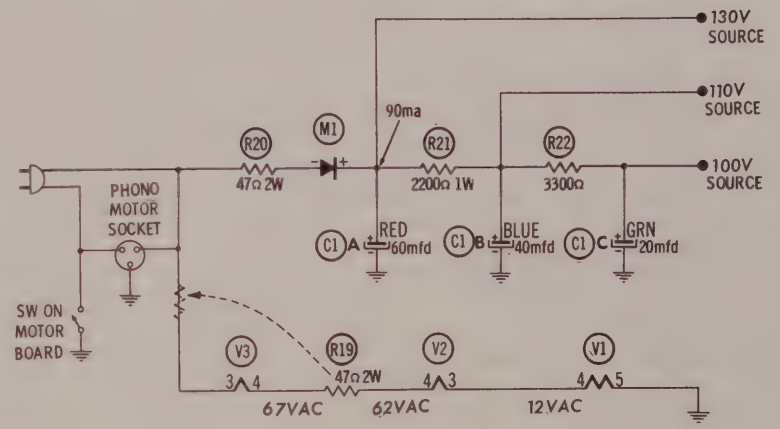
† MEASURED FROM OUTPUT OF M1

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



PHOTOFACT* Folder

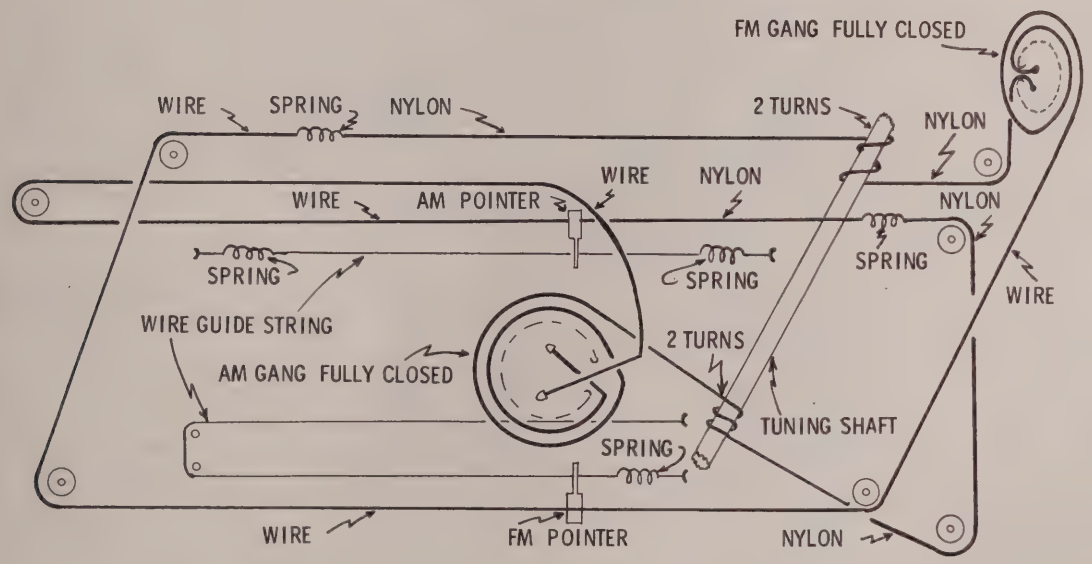
EIA

GRUNDIG MAJESTIC MODEL 3028

GRUNDIG MAJESTIC MODEL 3028

TRADE NAME	Grundig Majestic Model 3028		
SUPPLIER	Majestic International Sales Corp., 743 W. La Salle St., Chicago 10, Illionis		
TYPE SET	AC Operated FM-BC-SW Receiver		
TUBES (Six)	Types 6AQ8/ECC85 FM RF Amp.-FM Conv., 6AJ8/ECH81 1st FM IF Amp.-AM Mixer-AM Osc., EF89 2nd FM-1st AM IF Amp., 6T8/EABC80 Ratio Det.-AM Det.-AVC-AF Amp., 6CD7/EM34-35 Tuning Indicator, 6BQ5/EL84 Output		
POWER SUPPLY	110-125 (or 220) Volts AC-60 Cycles	RATING	.47 Amp @ 117 Volts AC (45 Watts) .235 Amp @ 220 Volts AC
TUNING RANGE—	BROADCAST 510-1620KC FREQ. MOD. 88-108MC	SHORT WAVE I SHORT WAVE II	5.9-13MC 12.9-23MC

FM AM DIAL CORD STRINGING

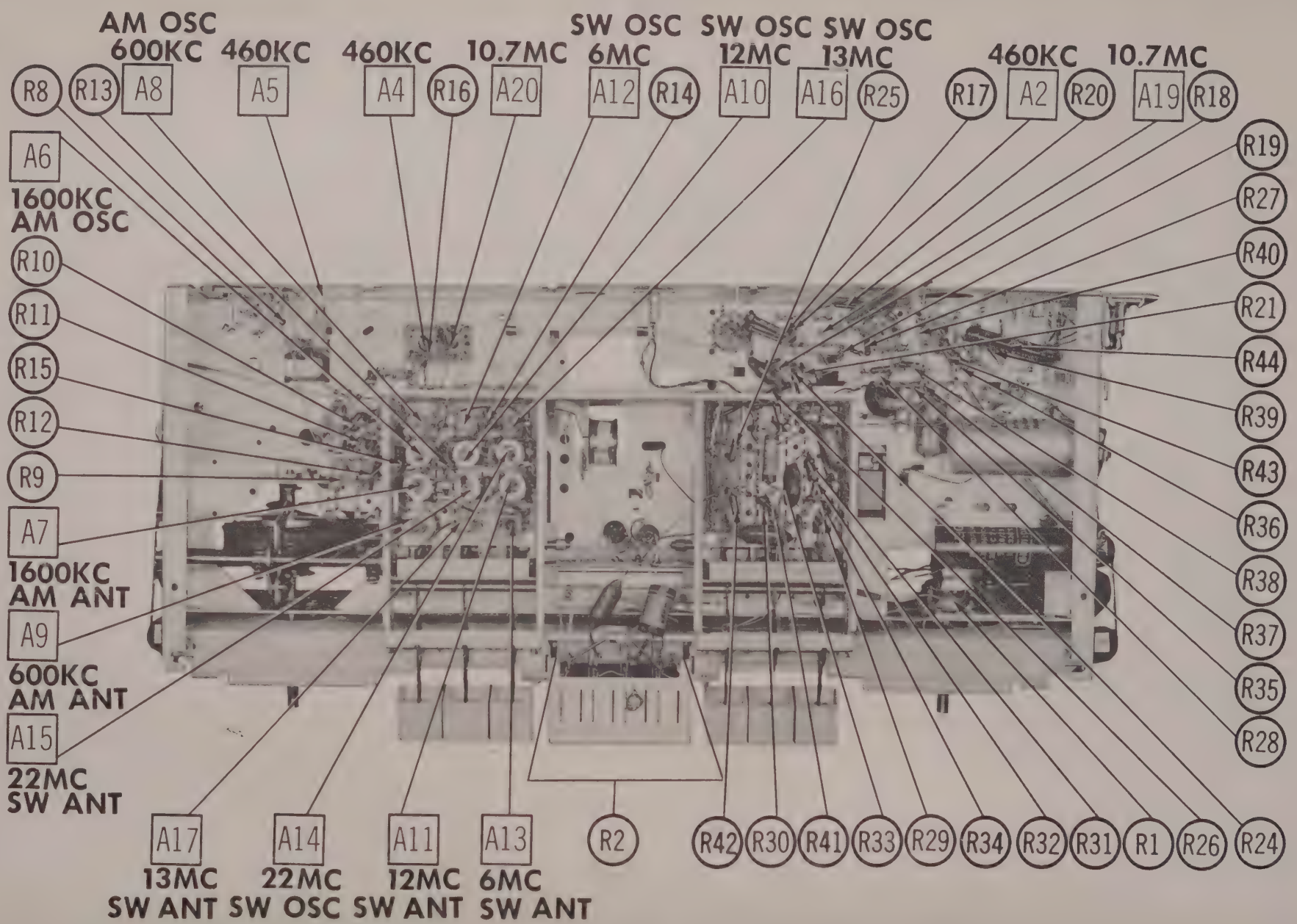


GRUNDIG MAJESTIC MODEL 3028

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H440



CHASSIS BOTTOM VIEW- RESISTOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	460KC (400~ Mod)	BC	Tuning gang fully open.	Across Voice Coil	A1, A2 A3, A4	Adjust for maximum output.
2.	200mfd	High side to AM Ant. socket. Low side to chassis.	"	" (Loop switch off)	"	"	A5	Adjust for MINIMUM output.
3.	"	"	1600KC	"	1600KC	"	A6, A7	Adjust for maximum output.
4.	"	"	600KC	"	600KC	"	A8, A9	Adjust for maximum output. Repeat Steps 3 and 4.
5.	"	"	12MC	SWI	12MC	"	A10, A11	Adjust for maximum output.
6.	"	"	6MC	"	6MC	"	A12, A13	Adjust for maximum output. Repeat Steps 5 and 6
7.	"	"	22MC	SWII	22MC	"	A14, A15	Adjust for maximum output.
8.	"	"	13MC	SWII	13MC	"	A16, A17	Adjust for maximum output Repeat Steps 7 and 8.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (± 1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	200mmfd	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A18	Adjust for maximum deflection.
10	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A19	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
11.	"	High side to pin 7 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	"	"	"	DC probe to point Ⓐ. Common to chassis.	A20, A21 A22, A23	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
9.	200mmfd	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC (450KC SWP.)	FM	Point of non-interference.	Vert. Amp. to point Ⓐ. Low side to chassis.	A18	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1
10.	"	"	"	"	"	Vert Amp. to point Ⓑ. Low side to chassis.	A19	Reconnect C2 Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2 SLIGHTLY retouch A18 for maximum amplitude and straightness of crossover lines.
11.	"	High side to pin 7 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	"	"	"	Vert. Amp. to point Ⓐ Low side to chassis.	A20, A21 A22, A23	Disconnect C2 Adjust for curve of maximum amplitude and symmetry similar to Fig. 1 Reconnect C2.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
12.	270Ω Carbon Resistor	Across FM Antenna Terminals.	106MC	FM	106MC	DC probe to point Ⓐ. Common to chassis.	A24, A25	Adjust for maximum deflection.
13.	"	"	90MC	"	90MC	"	A26, A27 A28	Adjust for maximum deflection. Repeat Steps 12 and 13.

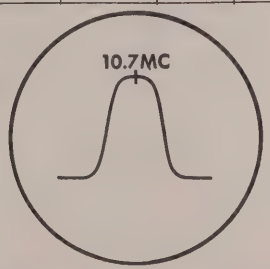


FIG. 1

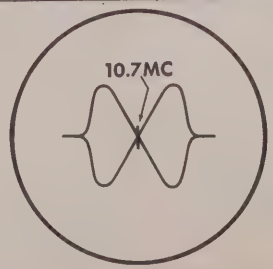
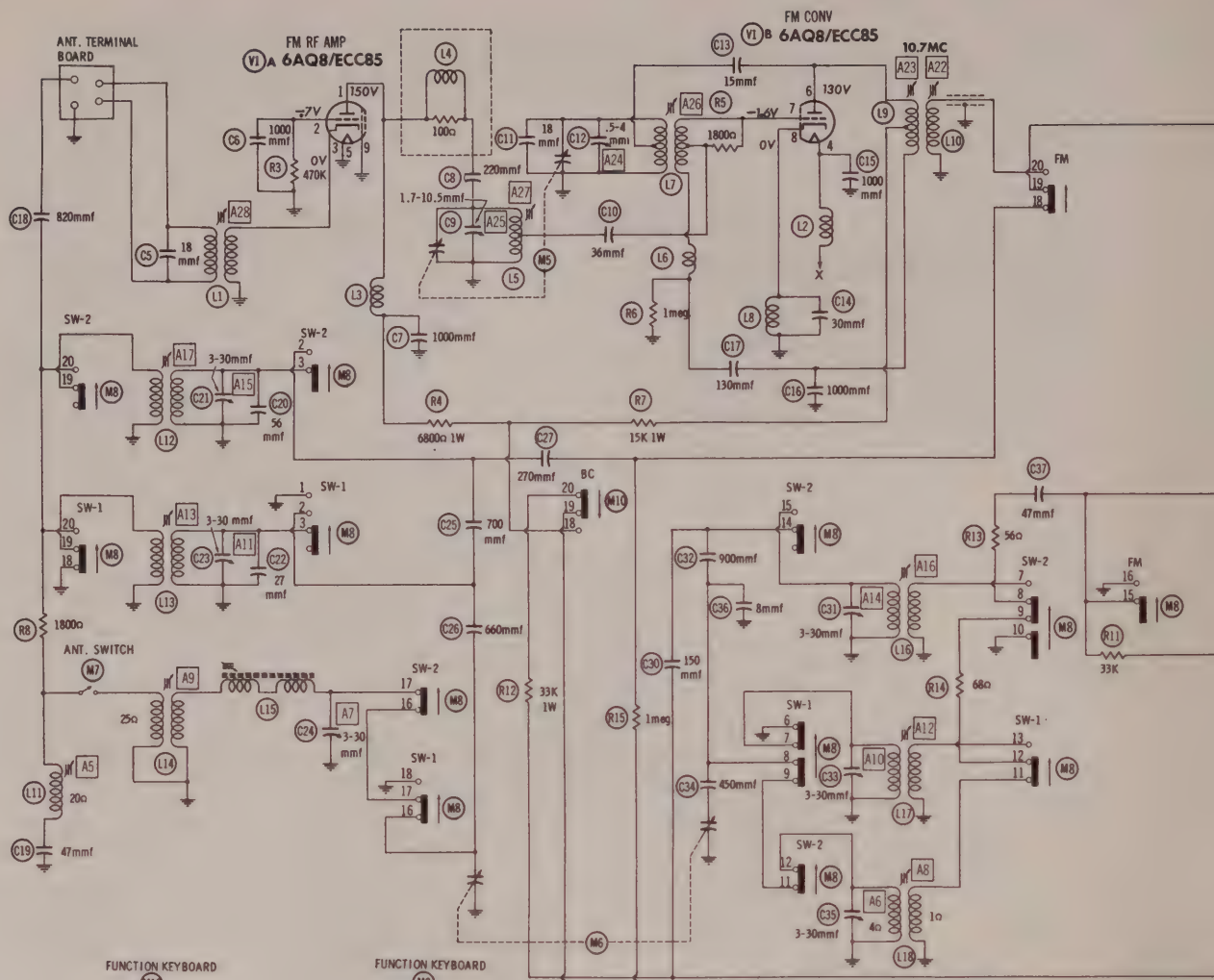
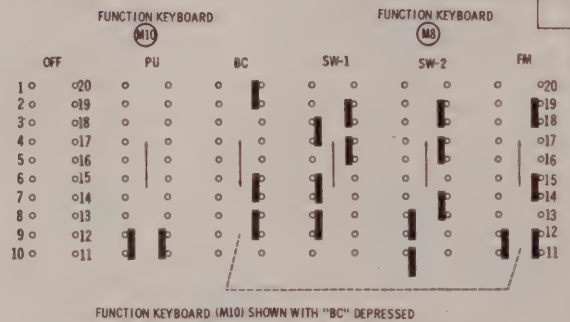
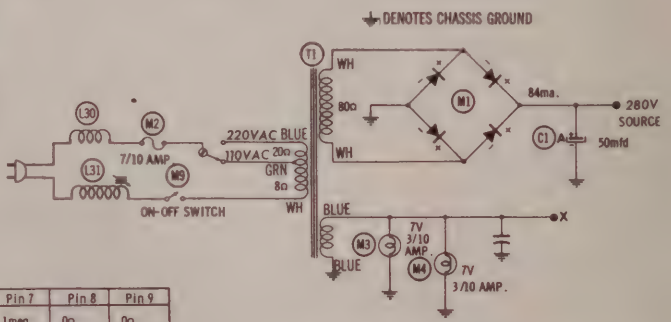


FIG. 2





FUNCTION KEYBOARD (M10) SHOWN WITH "BC" DEPRESSED



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8 ECC85	↑8100Ω	470K	0Ω	.1Ω	0Ω	↑16K	1meg	0Ω	0Ω
V2	6AJ8 ECH81	↑34K	.7Ω = 3.3meg	150Ω	.1Ω	0Ω	↑1300Ω	0Ω = 33K	INF ↑ = 33K	0Ω = 33K
V3	EF89	0Ω	220K 2.7meg	0Ω	0Ω	.1Ω	0Ω	↑2300Ω	↑58K	0Ω
V4	6T8 EABC80	INF	24K	INF	0Ω	.1Ω	480K	0Ω	10meg	↑440K
V5	6CD7 EM34 35	NC	.1Ω	↑1meg	2.2meg 2.7meg	↑1300Ω	↑1meg	0Ω	0Ω	
V6	6BQ5 EL84	890K	890K	170Ω	11Ω	0Ω	NC	↑482Ω	NC	↑1300Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM OUTPUT OF M1
= MEASURED IN "BC" POSITION
NC NO CONNECTION

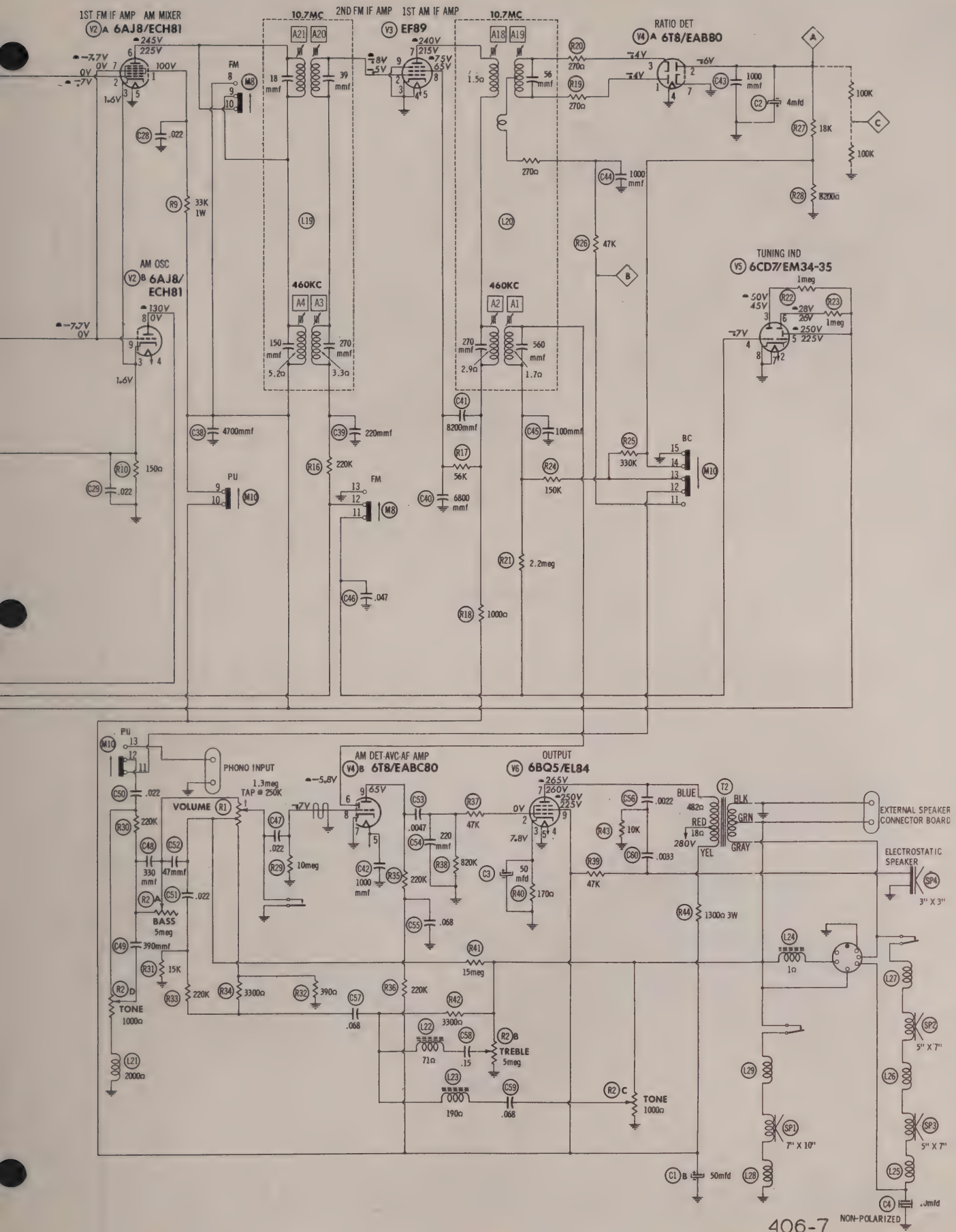
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

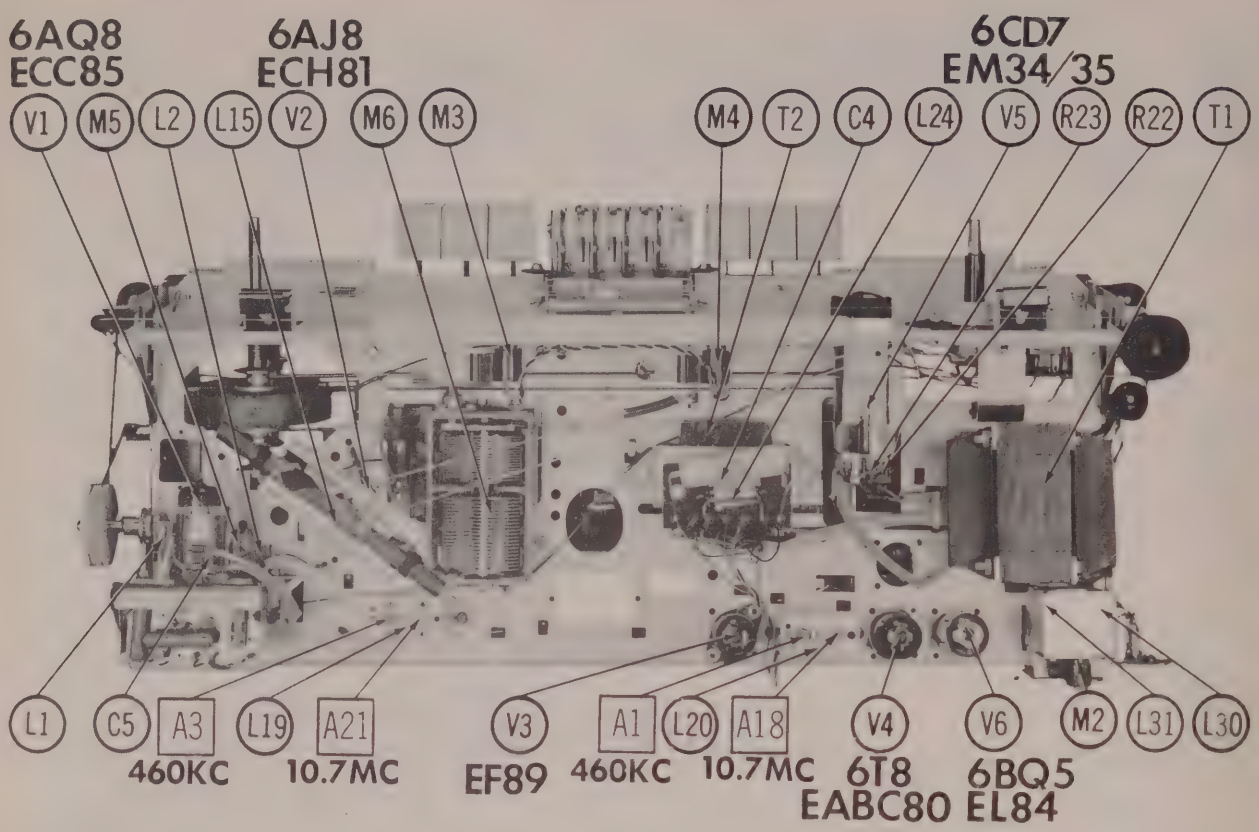
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

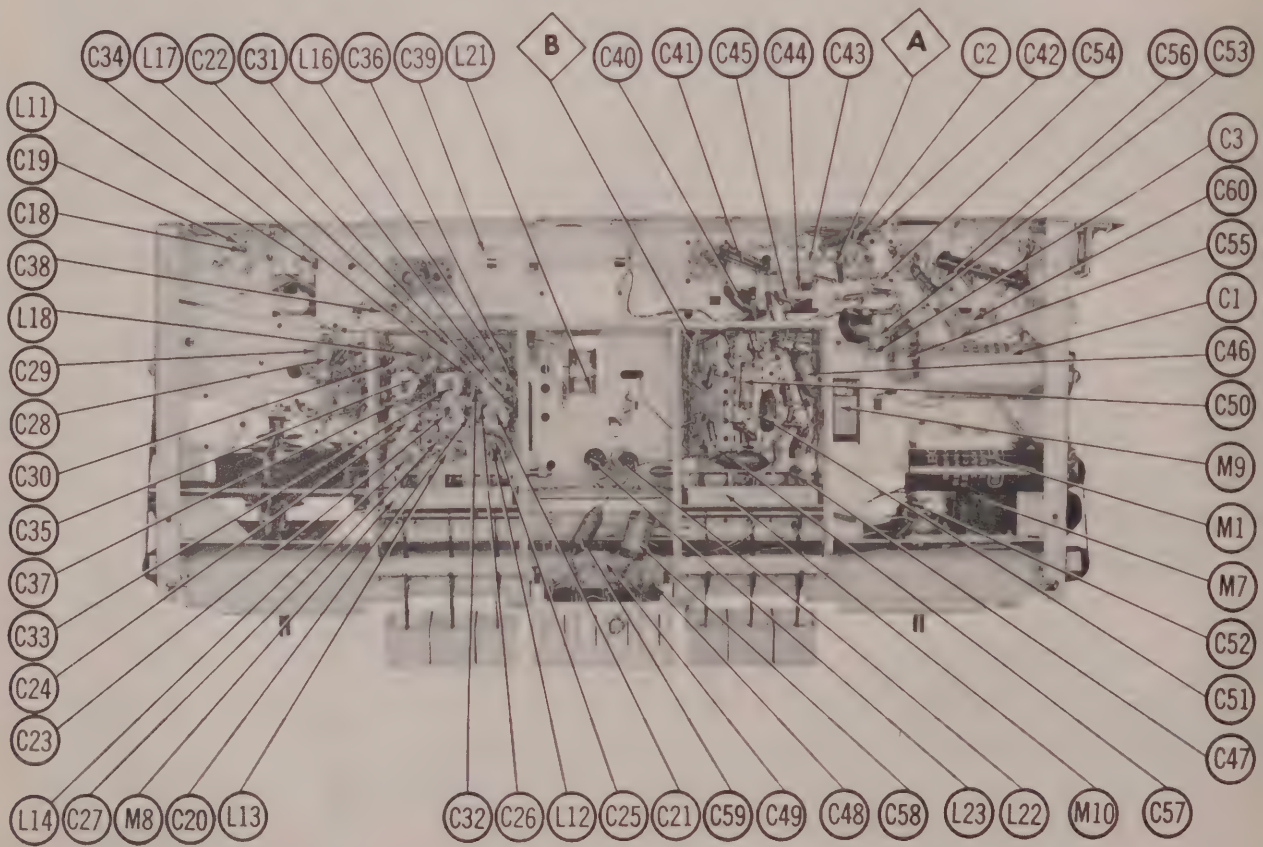
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958


1ST FM IF AMP AM MIXER
V2A 6AJ8/ECH81
10.7MC
2ND FM IF AMP
1ST AM IF AMP
V3 EF89
10.7MC
RATIO DET
V4A 6T8/EAB80
AM OSC
V2B 6AJ8/ECH81
460KC
460KC
TUNING IND
V5 6CD7/EM34-35
FM
PU
BC
AM DET-AVC-AF AMP
V4B 6T8/EABC80
OUTPUT
V6 6BQ5/EL84
PHONO INPUT
VOLUME
BASS
TONE
TREBLE
TONE
EXTERNAL SPEAKER CONNECTOR BOARD
ELECTROSTATIC SPEAKER
3" X 3"
5" X 7"
7" X 10"
5" X 7"
NON-POLARIZED
406-7

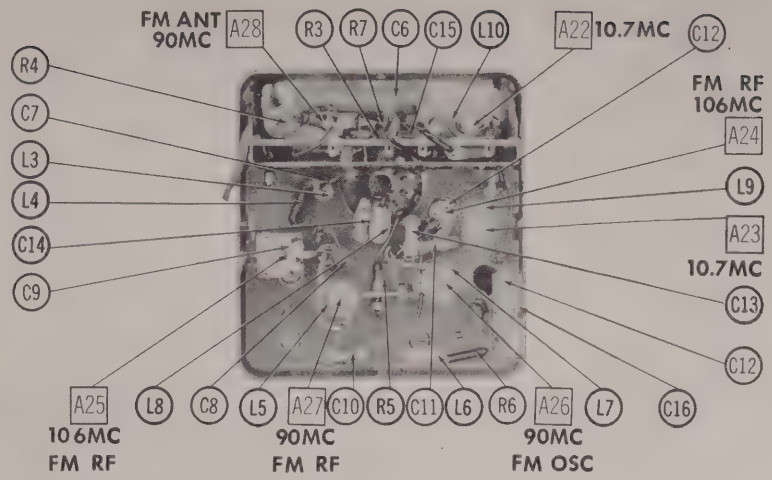


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW - CAPACITOR, INDUCTOR & MISC. IDENT.

FM RF SUB CHASSIS



PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	6AQ8/ ECC85
V2	1st FM IF Amp. -AM Mixer-AM Oscillator	6AJ8/ ECH81
V3	2nd FM-1st AM IF Amp.	EF89
V4	Ratio Det. -AM Det. -AVC-AF Amp.	6T8/ EABC80
V5	Tuning Indicator	6CD7/ EM34-35
V6	Output	6BQ5/ EL84

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Grundig Majestic PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	385						D-183	R2582*
B	50	385						MTD-4530	
C2	4	80		PRS150V4	BBR4-150	TC40	TD-4-150	MT-1504	TVA-1402
C3	50	15		PRS25V50	BBR50-25	TC29	TD-50-25	MT-0250	TVA-1206
C4	10	40 NP	0820-150	NP-PRS350V0	BBR20-150 BBR20-150 †	TC45 TC45 †	TD-20-150† TD-20-150†	MT-1520 MT-1520 †	R2633*

† Connect negative leads together

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Grundig Majestic PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	18			SI 18	D6-180	LT6Q18	UC-5418	5GA-Q18	
C6	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C7	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C8	220			DI-00022	DD-221	L10T22	UC-5322	5GA-T22	
C9	1.7-10.5								
C10	36								
C11	18			SI 18	D6-180	LT6Q18	UC-5418	5GA-Q18	
C12	5-4								
C13	15			SI 15	D6-150	LT6Q15	UC-5415	5GA-Q15	
C14	30			SI 30	DD-300	L10Q3	UC-543	5GA-Q3	
C15	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Grundig Majestic PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C16	1000			1467-001	D6-102	1W5D1	MC255	1FM-21	
C17	130				DD-131			1FM-313	
C18	820			1467-00082	D6-821	1W5T82		1FM-382	
C19	47			1468-000047	D6-470	5W5Q47	UC-5447	1FM-447	
C20	56			1468-000056	D6-560	5W5Q56	UC-5456	1FM-456	
C21	3-30								
C22	27			1468-000027	D6-270	5W5Q27	UC-5427	1FM-427	
C23	3-30								
C24	3-30								
C25	700								
C26	660								
C27	270				D6-271	5W5T27	UC-5327	1FM-327	
C28	.022	500		P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C29	.022	125		P288N-022	DD-203	CUB4S22	GEM-4122	2TM-S22	
C30	150			1468-00015	D6-151	5W5T12	UC-5315	1FM-315	
C31	3-30								
C32	900								
C33	3-30								
C34	450								
C35	3-30								
C36	8				DD-080	L10V8			
C37	47			1468-000047	D6-470	5W5Q47	UC-5447	1FM-447	
C38	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C39	220			1468-00022	D6-221	5W5T22	UC-5322	1FM-322	
C40	6800			SI 6800	D6-682	LT6D68			
C41	8200								
C42	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C43	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C44	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C45	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C46	.047	125		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C47	.022	125		P288N-022	DD-203	CUB4S22	GEM-4122	2TM-S22	
C48	330			1468-00033	D6-331	5W5T33	UC-5333	1FM-333	
C49	390			1468-00039	D6-391	5W5T39	UC-5339	1FM-339	
C50	.022	125		P288N-022	DD-203	CUB4S22	GEM-4122	2TM-S22	
C51	.022	125		P288N-022	DD-203	CUB4S22	GEM-4122	2TM-S22	
C52	47			1468-000047	D6-470	5W5Q47	UC-5447	1FM-447	
C53	.0047	500		P688N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	
C54	220			1468-00022	D6-221	5W5T22	UC-5322	1FM-322	
C55	.068	500		P688N-068		CUB6S68	GEM-6168	6TM-S68	
C56	.0022	500		P688N-0022	D6-222	CUB6D22	GEM-6222	6TM-D22	
C57	.068	125		P288N-068		CUB4S68	GEM-4168	4TM-S68	
C58	.15	125		P288N-15		CUB2P15	GEM-2015	2TM-P15	
C59	.068	125		P288N-068		CUB4S68	GEM-4168	4TM-S68	
C60	.0033	500		P688N-0033	D6-332	CUB6D33	GEM-6233	6TM-D33	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Grundig Majestic PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1.3meg	½	7801-038					Volume, Tape@250K
R2A	5meg	½	7806-145					Bass
B	5 meg	½						Treble
C	1000Ω	½						Tone
D	1000Ω	½						Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Grundig Majestic PART No.	NOTES
R3	470K			
R4	6800Ω	1		
R5	1800Ω			
R6	1meg			
R7	15K	1		
R8	1800Ω			
R9	33K	1		
R10	150Ω			
R11	33K			
R12	33K	1		
R13	56Ω			
R14	68Ω			
R15	1meg			
R16	220K			
R17	56K			
R18	1000Ω			

GRUNDIG MAJESTIC MODEL 3028

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	Grundig Majestic PART No.	NOTES
R19	270Ω			
R20	270Ω			
R21	2.2meg			
R22	1meg			
R23	1meg			
R24	150K			
R25	330K			
R26	47K			
R27	18K			
R28	8200Ω			
R29	10meg			
R30	220K			
R31	15K			

ITEM No.	RATING OHMS	RATING WATT	Grundig Majestic PART No.	NOTES
R32	390Ω			
R33	220K			
R34	3300Ω			
R35	220K			
R36	220K			
R37	47K			
R38	820K			
R39	47K			
R40	170Ω			
R41	15meg			
R42	3300Ω			
R43	10K			
R44	1300Ω	3		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Grundig Majestic PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	220V ⓐ .235A Tapⓐ 117V ⓐ .47A	220Vⓐ .070A	6.3V ⓐ 3A	9084-012						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Grundig Majestic PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6500Ω Tapⓐ 500Ω	3.8Ω Tapⓐ 2.4Ω	BV9066-046							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Grundig Majestic PART No.	QUAM PART No.	NOTES
SP1	7" x 10"	PM	2-3Ω	7045-2W		
SP2	5" x 7"	PM	2-3Ω	0459-11N		
SP3	5" x 7"	PM	3-4Ω	0459-21	57A21	
SP4	3" x 3"	Electrostatic		7082-002		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Grundig Majestic PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.	HFBV 1974/I					
L2	Fil. Choke	HFBV 1833					
L3	RF Choke	HFBV 1975/I	19-1001	BC-562	4604		1.5 Microhenries Wound on 100Ω Resistor
L4	RF Choke	HFBV 1956/I					
L5	FM RF Coil	9208-052					
L6	RF Choke	HFBV 1976/I					2.85 Microhenries
L7	FM Osc. Coil	9208-065					
L8	Cathode Choke	HFBV 1950/I	19-1000	BC-561	4602		1.25 Microhenreis
L9	1st FM IF Pri.	HFBV 1977/I					
L10	1st FM IF Sec.	HFBV 1978/I					
L11	IF Trap Coil	9208-055					
L12	SW Ant. Trans	9232-005					
L13	SW Ant. Trans	9231-003					
L14	BC Ant. Trans	9208-059					
L15	Loop Stick	9233-003					
L16	SW Osc. Coil	9232-006					
L17	SW Osc. Coil	9231-002					
L18	BC Osc. Coil	HFBV 1681					

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA Grundig Majestic PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L19A	2nd FM IF	7207-308					
B	1st AM IF						
L20A	Ratio Det.	7207-317					
B	2nd AM IF						
L21	Tone Choke	9235-001					
L22	Tone Choke	9217-006					
L23	Tone Choke	9217-007					
L24	Tone Choke	9217-008					
L25	Speaker Choke	HFBV 2149/I	19-1000	BC-561	4602		1.2 Microhenry
L26	Speaker Choke	HFBV 2148/I					2.1 Microhenries
L27	Speaker Choke	HFBV 2149/I	19-1000	BC-561	4602		1.2 Microhenry
L28	Speaker Choke	HFBV 2149/I	19-1000	BC-561	4602		1.2 Microhenry
L29	Speaker Choke	HFBV 2149/I	19-1000	BC-561	4602		1.2 Microhenry
L30	Line Choke	9227-004					
L31	Line Choke	9227-005					

RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Grundig Majestic PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.084A	B250C75N2①		60-9150①③	D-64 ②	①Selenium Type ②Silicon Type ③2 Required

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Grundig Majestic PART No. FUSE	Grundig Majestic PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	S/B	0.7A	0.7A ①	9625-057				

①. 4A used for 220V AC Power Source

MISCELLANEOUS

ITEM No.	PART NAME	Grundig Majestic PART No.	NOTES
M3	Dial Lamp		7V . 3A
M4	Dial Lamp		7V . 3A
M5	Tuning Cap.	9653-601	FM, 2 Gang
M6	Tuning Cap.	1005-022	AM, 2 Gang (Ant. 9-550mmf, Osc. 13-485mmf)
M7	Switch	1036-052	Antenna (SPST)
M8	Switch	7411-019	Function (SWI, SWII, FM)
M9	Switch	7404-548	Power On-Off (SPST)
M10	Switch		Function (Off, PU, BC)
	AM Pointer	1035-094	
	FM Pointer	1032-073	
	Dial	1045-315	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	9616-532	Right Hand, Large, Lower Part.
Knob	9616-538	Left Hand, Large, Lower Part.
Knob	9616-536	Small, Top Part.
Cabinet	1045-110	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

KNIGHT MODEL KN-530 (92SZ402)

KNIGHT MODEL
KN-530 (92SZ402)

KNIGHT MODEL
KN-530 (92SZ402)

TRADE NAME	Knight Model KN-530 (92SZ402)
SUPPLIER	Allied Radio Corp., 100N. Western Ave., Chicago 80, Illinois
TYPE SET	AC Operated 8 Channel 30 Watt Audio Amplifier
TUBES (Six)	Types 12AX7/ECC83 Preamplifier, 12AX7/ECC83 AF Amplifier, 12AX7/ECC83 AF Amp.-Phase Inv., (2) 6CA7/EL34 Output, 5U4GB Rectifier
POWER SUPPLY	105-130 Volts AC-50/60 Cycle RATING 1 Amp@117 Volts AC (110 Watts)

ADJUSTMENTS

If either output tube (V4, V5) is replaced, the Hum Balance (R7A) and Bias (R7C) should be adjusted.

1. Connect a DC milliammeter in series with the plate lead (pin9) of each output tube. Adjust R7A for equal meter indications. (If only one meter is available, it may be alternately connected in series with the plate leads).

2. Connect a DC voltmeter between chassis and the center terminal of R7A. With an input voltage of 120 Volts AC, adjust R7C for a meter reading of 30 volts.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

PARTS LIST & DESCRIPTION

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Preamplifier	12AX7/ ECC83
V2	AF Amplifier	12AX7/ ECC83
V3	AF Amp. -Phase Inv.	12AX7/ ECC83

ITEM No.	USE	TYPE
V4	Output	6CA7/ EL34
V5	Output	6CA7/ EL34
V6	Rectifier	5U4GB

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	30	450		AFH1-51	A0470	FP145	TMS-56	S-265	TVL-1720
C2A	▲40	450		AFH4-17	D0160	FP475.5	TMQ-17	Q-055	TVL-4771.3
B	■10	450							
C	▲10	450							
D	10	450							
C3	35	50		PRS150V30	BR505	TC47	TD-50-50	MT-0550	TVA-1308
C4A	150	50		PR2-050	BR1505		TD-150-50	MT-15150	R2645 *
B	150	50			BR1505		TD-150-50	MT-15150	
C5	8	450	①	PRS450V8	BR845	TC71	TD-8-450	MT-4508	TVA-1704
C6	8	450	①	PRS450V8	BR845	TC71	TD-8-450	MT-4508	TVA-1704
C7	35	50		PRS150V30	BR505	TC47	TD-50-50	MT-0550	TVA-1308

① When C5 is 16mfd, C6 is not used

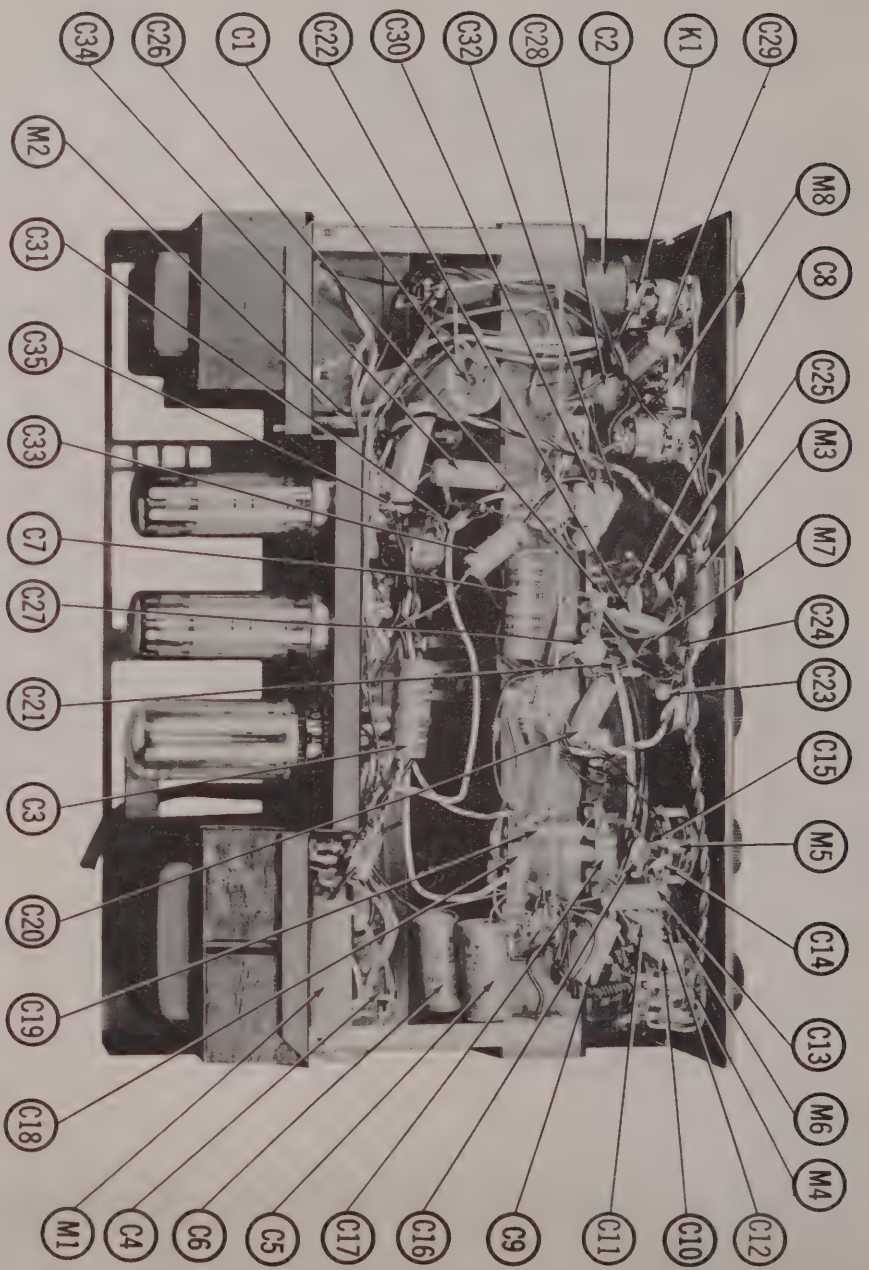
* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C8	100			NP0-DI 100	DTZ-100	C10T1C	ZT-531	5CC-T1	NP0 10%
C9	.1	600		P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C10	.01	600		P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C11	4700								10%
C12	2200								10%
C13	.022	600		P688N-022		CUB6S22	GEM-6122	6TM-S22	
C14	270				MD-271	L10T27		5TCC-T22	10%
C15	560				MD-561				10%
C16	1000								10%
C17	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C18	.01	600		P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C19	.01	600		P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C20	.022	600		P688N-022		CUB6S22	GEM-6122	6TM-S22	
C21	330				MD-331	L10T33			10%
C22	.0033	600		P688N-0033	D6-332	CUB6D33	GEM-6233	6TM-D33	
C23	.0056	200			D6-562				
C24	.056	200					GEM-6156		
C25	15			1469-000015	DD-150	22R5Q15		1FM-415	10%
C26	47			NP0-DI 47	DTZ-47	C10Q47C		5TCC-Q47	NP0 10%
C27	47			NP0-DI 47	DTZ-47	C10Q47C		5TCC-Q47	NP0 10%
C28	.1	600		P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C29	.1	600		P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C30	47			1468-000047	DD-470	5W5Q47		1FM-447	
C31	470			BPD-00047	DD-471		UC-5347	5GA-T47	
C32	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C33	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C34	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C35	68			N750-DI 68	DTN-68	C10Q68A		5TCU-Q68	N750 10%

CHASSIS— TOP VIEW



PARTS LIST & DESCRIPTION (continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	KNIGHT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	RP504AG					Loudness, Tap @ 200K & 350K
B	Switch							
R2A	500K	½	RP105AE		AD47-500K-Z	Q13-133		Volume
B	500K	½			Not Req.	M13-133		Volume
C	Shaft				KSS-3	Not Req.		
D	Switch				SWE-12	76-1		Power On-Off
R3A	500K	½	RP504AE	B-60	A47-500K-Z	Q13-133	U48	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	500K	½	RP504AE	B-60	A47-500K-Z	Q13-133	U48	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req	
R5A	500K	½	RP504AE	B-60	A47-500K-Z	Q13-133	U48	Tuner Level
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R6A	500Ω	½	RP501D					Damping
B	Switch							
R7A	10K	½	RP333	AB-14	A47-10K-S	Q11-116	SU-20	Hum Balance
B	Shaft			AK-1	FKS-1/4	SQ	Not Req.	
C	25K	½		AB-26	A47-25K-S	Q11-120	SU-29	Bias Adjust
D	Shaft			AK-1	FKS-1/4	SQ	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		KNIGHT PART No.	NOTES
	OHMS	WATT		
R8	18K			
R9	8200Ω			
R10	39K			
R11	100K			
R12	470K			
R13	220K 5%			
R14	47K 5%			
R15	1500Ω 5%			
R16	470K			
R17	68K			
R18	100K			
R19	330K			
R20	1meg			
R21	3300Ω			
R22	220K 5%			
R23	1500Ω 5%			
R24	68K			
R25	4.7meg			
R26	22K			
R27	6800Ω			
R28	47K			
R29	4700Ω			
R30	47K			

ITEM No.	RATING		KNIGHT PART No.	NOTES
	OHMS	WATT		
R31	680K			
R32	220K			
R33	1500Ω			
R34	470K			
R35	270K			
R36	3000Ω 5%			
R37	470K			
R38	47K			
R39	680Ω			
R40	47K			
R41	100K			
R42	100K			
R43	100K			
R44	100K			
R45	1.5Ω	10		
R46	56Ω 5%	1		
R47	300Ω 5%	1		
R48	12K	1		
R49	4700Ω			
R50	10K			
R51	10K			
R52	60Ω	7		
R53	470Ω	1		

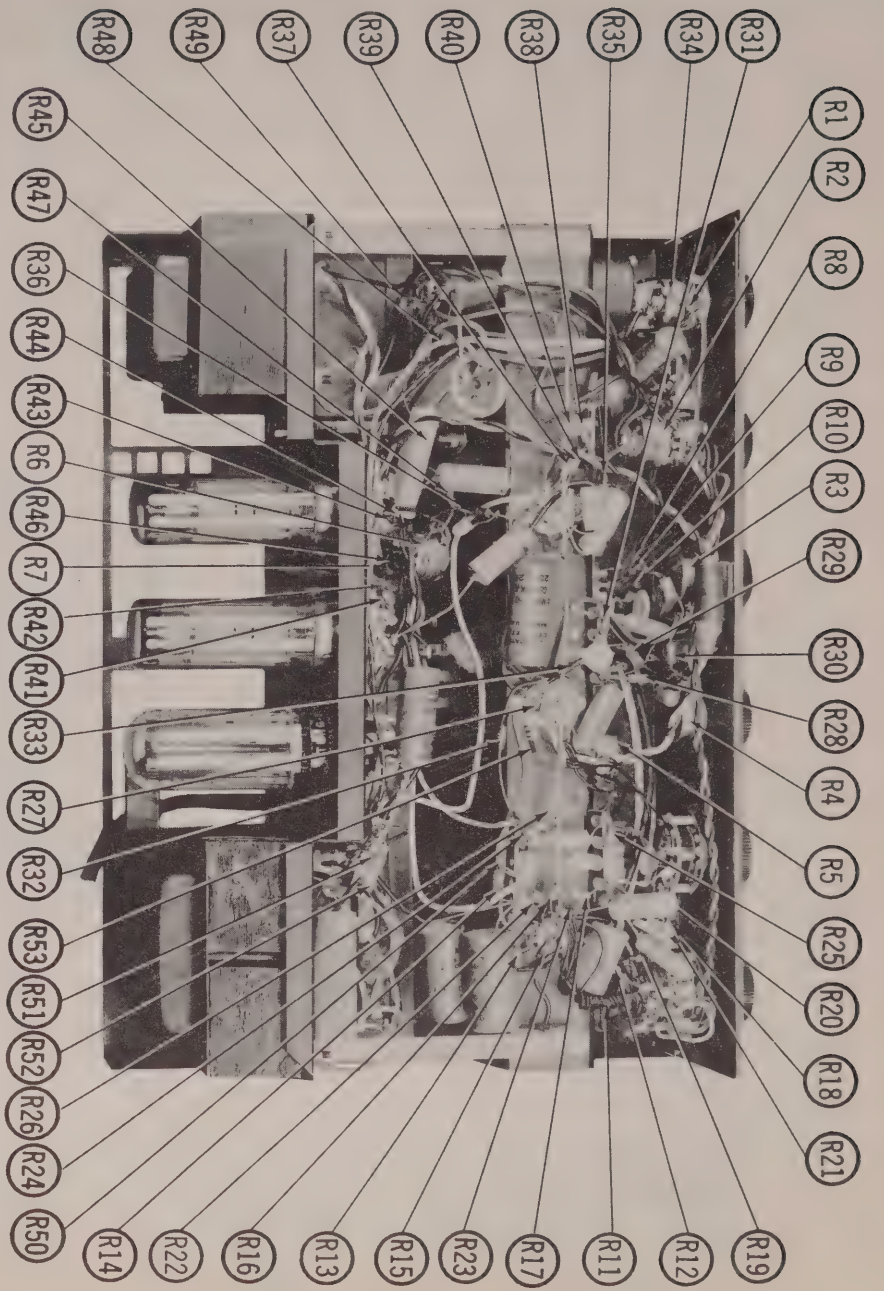
TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1A	700VCT @ .120A	5V @ 2.8A	LP-0266						
	SEC. 3	SEC. 4	SEC. 5							
	36V @ .33A	6.3VCT @ 3.5A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2400Ω CT	16Ω Tap @ 8Ω, 4Ω	L0-0153							

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	KNIGHT PART No.	REPLACEMENT DATA
K1	Tone Compensation	4500mmf, 4500mmf, 200mmf, 100mmf 50K, 50K		Centralab PC-324

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	KNIGHT PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.150A			SD-91 ①	M500①	① Silicon Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			KNIGHT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	3A 250V			312003. (3AG 3A 250V)	341001	AGC 3 (3A 250V)	HKP

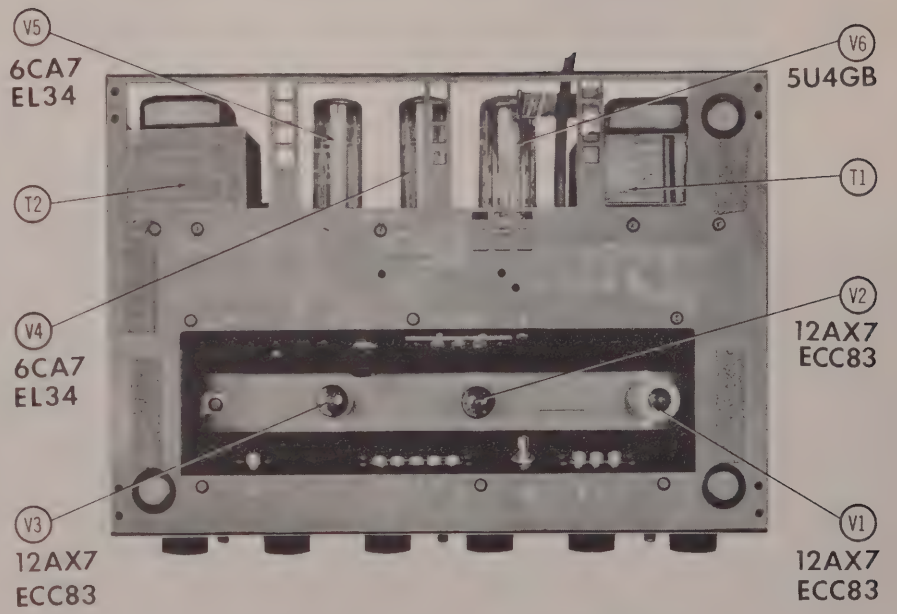
MISCELLANEOUS

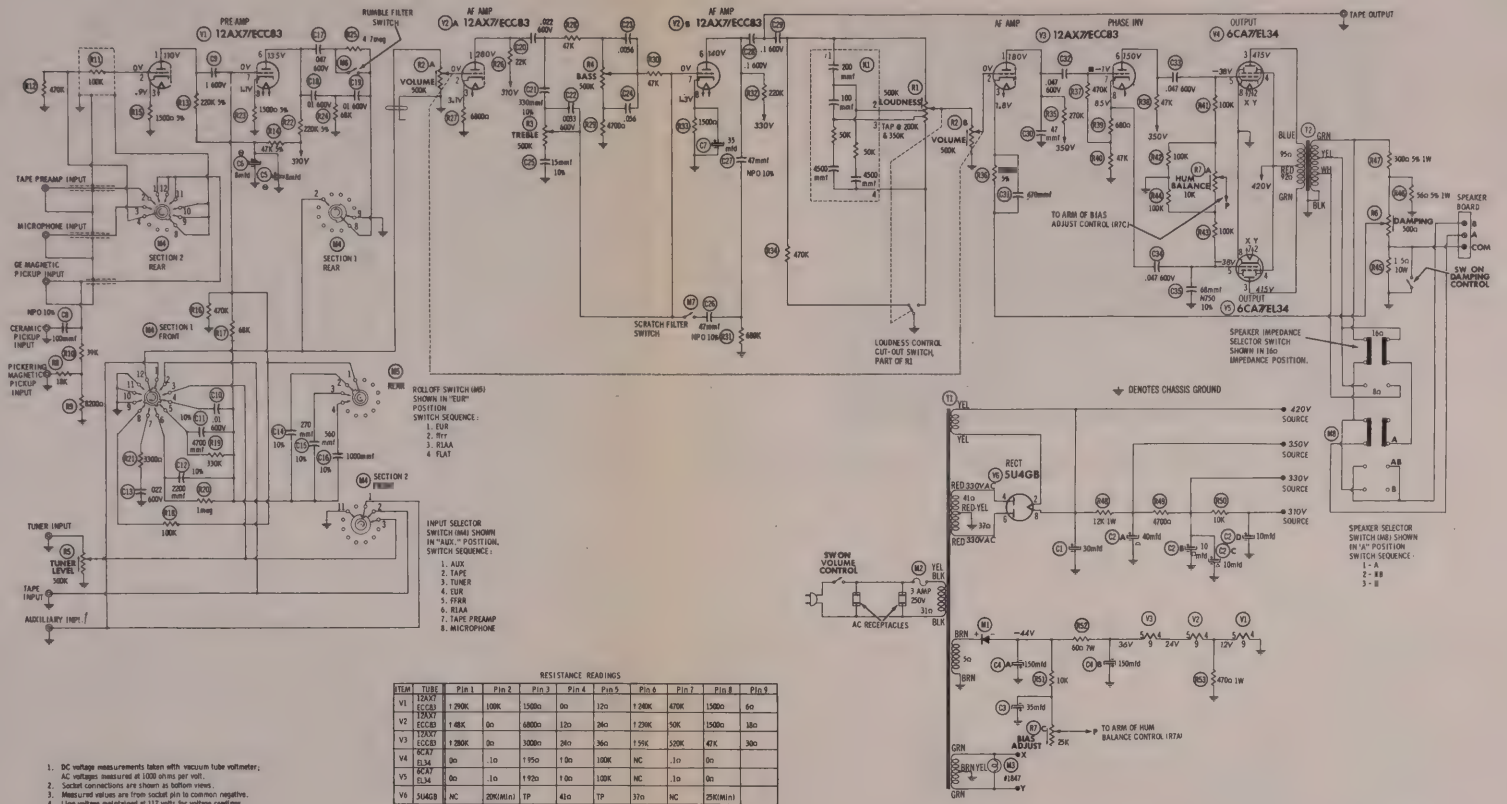
ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M3	Lamp		#1847
M4	Switch		Input Selector, 2 Section, 8 Position, Rotary Wafer Type
M5	Switch		Rolloff, Single Section, 4 Position, Rotary Wafer Type
M6	Switch		Rumble Filter, SPST, Slide Type
M7	Switch		Scratch Filter, SPST, Slide Type
M8	Switch		3 Position, Slide Type

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7 ECC83	†290K	100K	1500Ω	0Ω	12Ω	†240K	470K	1500Ω	6Ω
V2	12AX7 ECC83	†68K	0Ω	6800Ω	12Ω	26Ω	†23K	50K	1500Ω	18Ω
V3	12AX7 ECC83	†280K	0Ω	3000Ω	26Ω	36Ω	†59K	520K	47K	30Ω
V4	6CA7 EL34	0Ω	.1Ω	†950	1Ω	100K	NC	.1Ω	0Ω	
V5	6CA7 EL34	0Ω	.1Ω	†92Ω	1Ω	100K	NC	.1Ω	0Ω	
V6	5U4GB	NC	20K(Min)	TP	41Ω	TP	37Ω	NC	25K(Min)	

† MEASURED FROM PIN 8 OF V6.
● MEASURED FROM PIN 8 OF V3.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

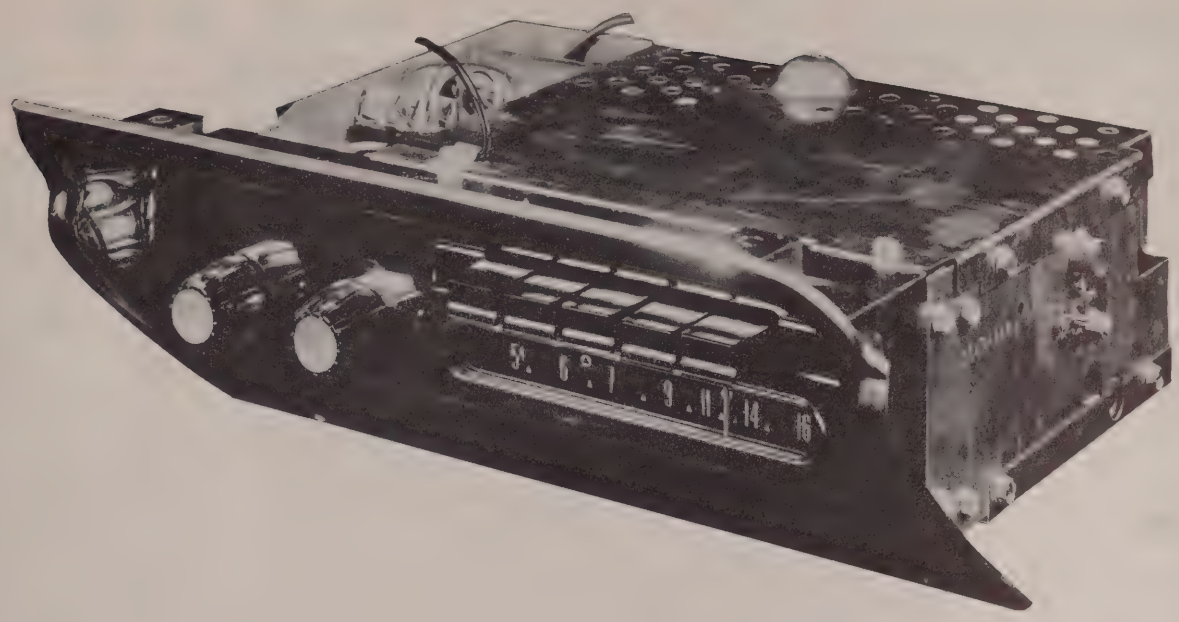
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MOPAR MODEL 848 (P-5801)

MOPAR MODEL 848 (P-5801)



TRADE NAME	Mopar Model 848 (P-5801) For 1958 LP-1 & LP-2 Plymouth Automobiles
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Transistorized Output
TUBES (Four)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12BL6 IF Amplifier, 12DW8 Det. - AVC - AF Amp.
POWER SUPPLY	12 Volt Storage Battery
RATING	1.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 - 1605KC

MOPAR MODEL 848 (P-5801)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Speaker must be connected to the radio.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.047mfd	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	262.5KC (400~ Mod)	1605KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy to antenna receptacle	1605KC	"	"	A5, A6, A7	"
3.	With radio installed in car and antenna fully extended, tune in a weak station near 1200KC and adjust A7 for maximum output.						

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1 V2	RF Amplifier Converter	12BL6 12AD6	

ITEM No.	USE	TYPE	NOTES
V3 V4	IF Amplifier Det. - AVC - 1st AF Amp. - 2nd AF Amplifier	12BL6 12DW8	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	AR10	Output	CBS LT-5002	2N301		AR10	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A B	■500 ▲200	16 16	61-0086-9	AFH2-02-75	B0045	WP200.5			R2480 *

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	6-97		31-6533-1						
C3	100		30-1251-22	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C4	7.5		30-1263-10						
C5			31-6532-3						
C6	33		30-1263-8	BPD-000033	DD-330	L10Q33	UC-5433	5GA-Q33	
C7	100		30-1263-14	N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C8			31-6532-4						
C9	100		30-1263-14	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C10	10000		30-1262	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C11	.047	200	30-4650-45	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C12	220		30-1262-23	BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C13	10000		30-1238-6	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C14	10000		30-1238-6	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	Note 1
C15	.047	200	30-4650-45	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C16	300		30-1254-1						

Note 1. Some versions use .0022mfd in this application (Part #30-1262-7).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A B R2	1meg Switch 15Ω	½ 2(WW)	33-5580-21 33-5591-2	ABT-73 ① KB-4 or KR-4*				Volume, Tap @ 300K Transistor Bias

① Use AK-28 Adaptor Bushing and AK-8 Shaft.
* Use KR with CRL "red label" controls and KB with "blue label" controls.

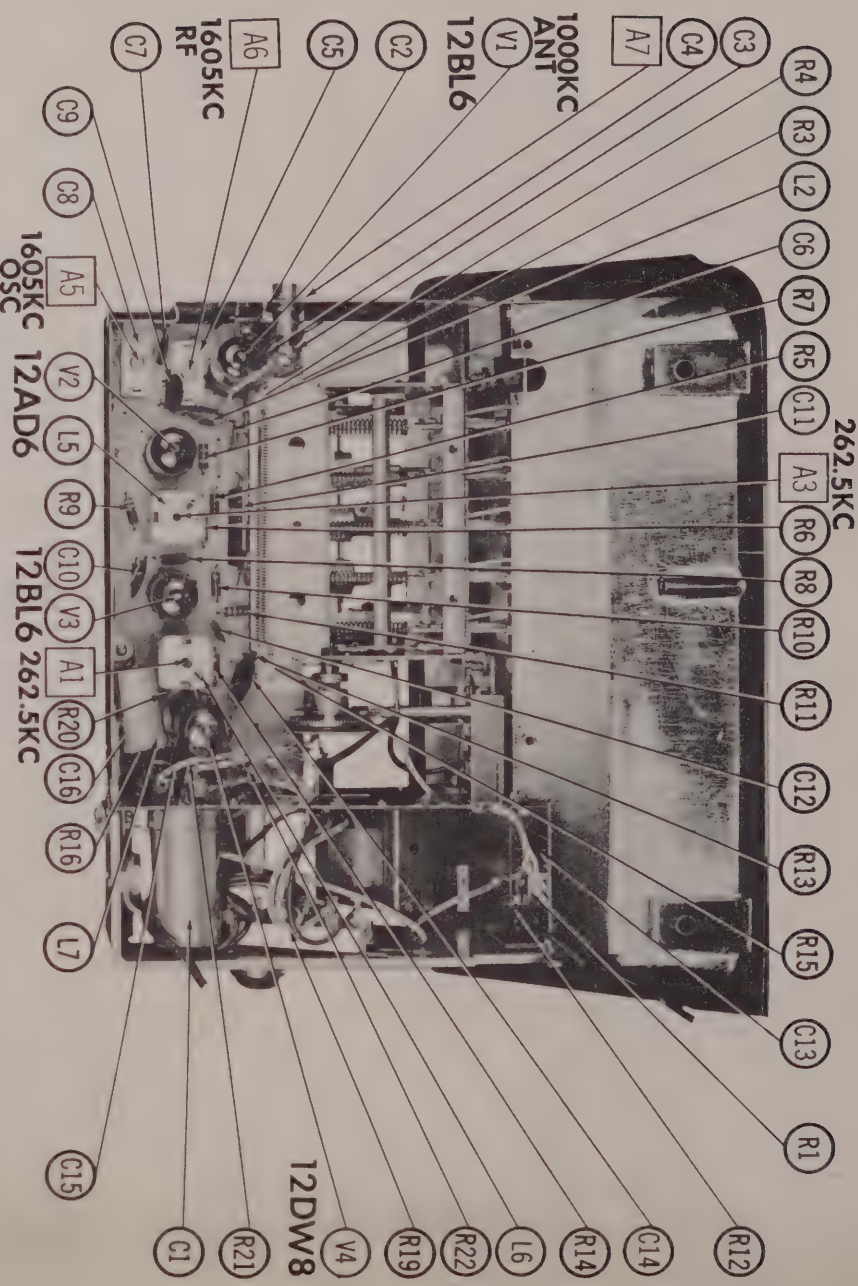
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R3	150K 5%		66-4158340	
R4	1000Ω		66-2108340	
R5	1meg		66-5108340	
R6	6.8meg		66-5688340	
R7	47K		66-3478340	

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R8	22meg		66-6228340	
R9	4.7meg		66-5478340	Note 1
R10	1.2meg		66-5128340	
R11	22K		66-3228340	Note 2
R12	150K		66-4158340	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	PHILCO PART No.	NOTES
R13	10meg		66-6108340	Note 3
R14	10Ω		66-0108340	
R15	10K		66-3108340	
R16	1meg		66-5108340	
R17	.27Ω		66-8273360	
R18	18Ω			Note 4
R19	100Ω	10		Note 5
R20	220Ω		66-1228340	
R21	100Ω		66-1108340	
R22	27Ω	2	66-0276340	

Note 1. Some versions may use 10meg in this application (Part #66-6108340).
Note 2. Some versions may use 100K in this application (Part #66-4108340).
Note 3. Some versions may use 15meg in this application (Part #66-6158340).
Note 4. Not used in some versions.
Note 5. Some versions may use 150Ω 10W in this application (Part #33-1367-2).

TRANSFORMER (INTERSTAGE)

ITEM No.	Turns Ratio PRI.	Turns Ratio SEC.	REPLACEMENT DATA PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	10	: 1	32-8737							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	312Ω	3-4Ω	32-8636-2 ①							① Alternate Part #32-8636-1

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA PHILCO PART No.	QUAM PART No.	NOTES
SP1	5" X 7"	PM	3-4Ω	36-1670-2	57A15	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA PHILCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Antenna Coil	32-4730-7					Note 1
	Antenna Coil	32-4730-16					Note 2
L2	RF Choke	32-4480-24	19-3160	TV-196	6120		150 Microhenries
L3	RF Coil	32-4730-8					Note 1
	RF Coil	32-4730-17					Note 2
L4	Osc. Coil	32-4730-9					Note 1
	Osc. Coil	32-4730-18					Note 2
L5	Input IF	32-4676-7		BC-344	13-PH1		
L6	Output IF	32-4677-2					
L7	Hash Choke	32-4720-3					

Note 1. Part of Tuner #76-11349-1.
Note 2. Part of Tuner #76-11349-2.

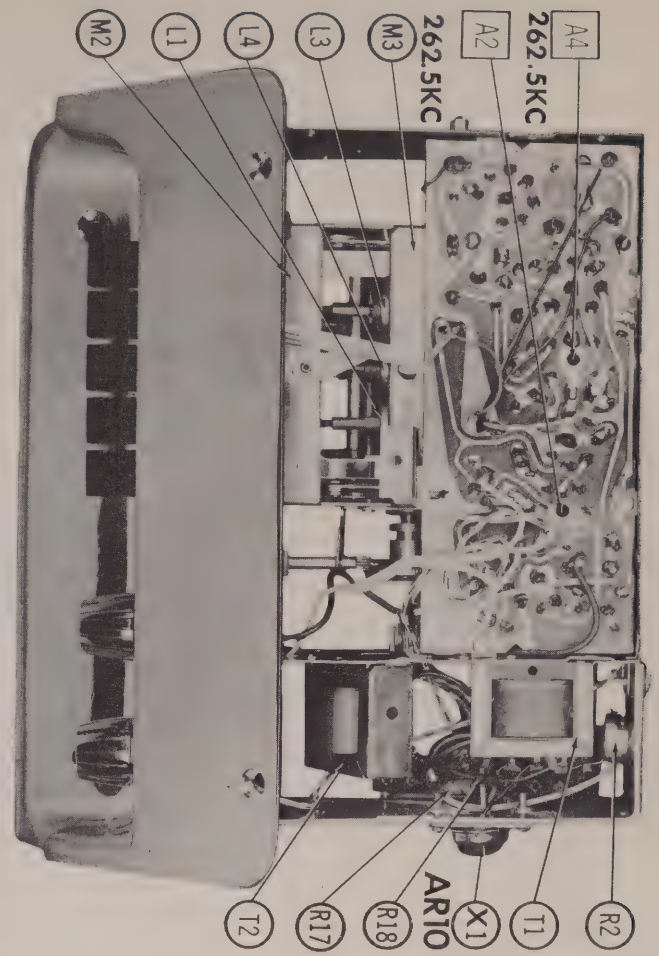
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA PHILCO PART No. FUSE	PHILCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	SFE	7½A 32V	45-2656-53		30707.5 (7½A 32V)	155009	SFE7½	HDH

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	Lamp	34-2064	#44
M3	Tuner Ass'y	76-11349-1	Complete
	Tuner Ass'y	76-11349-2	Complete
	Printed Board	54-6472	

CHASSIS—BOTTOM VIEW



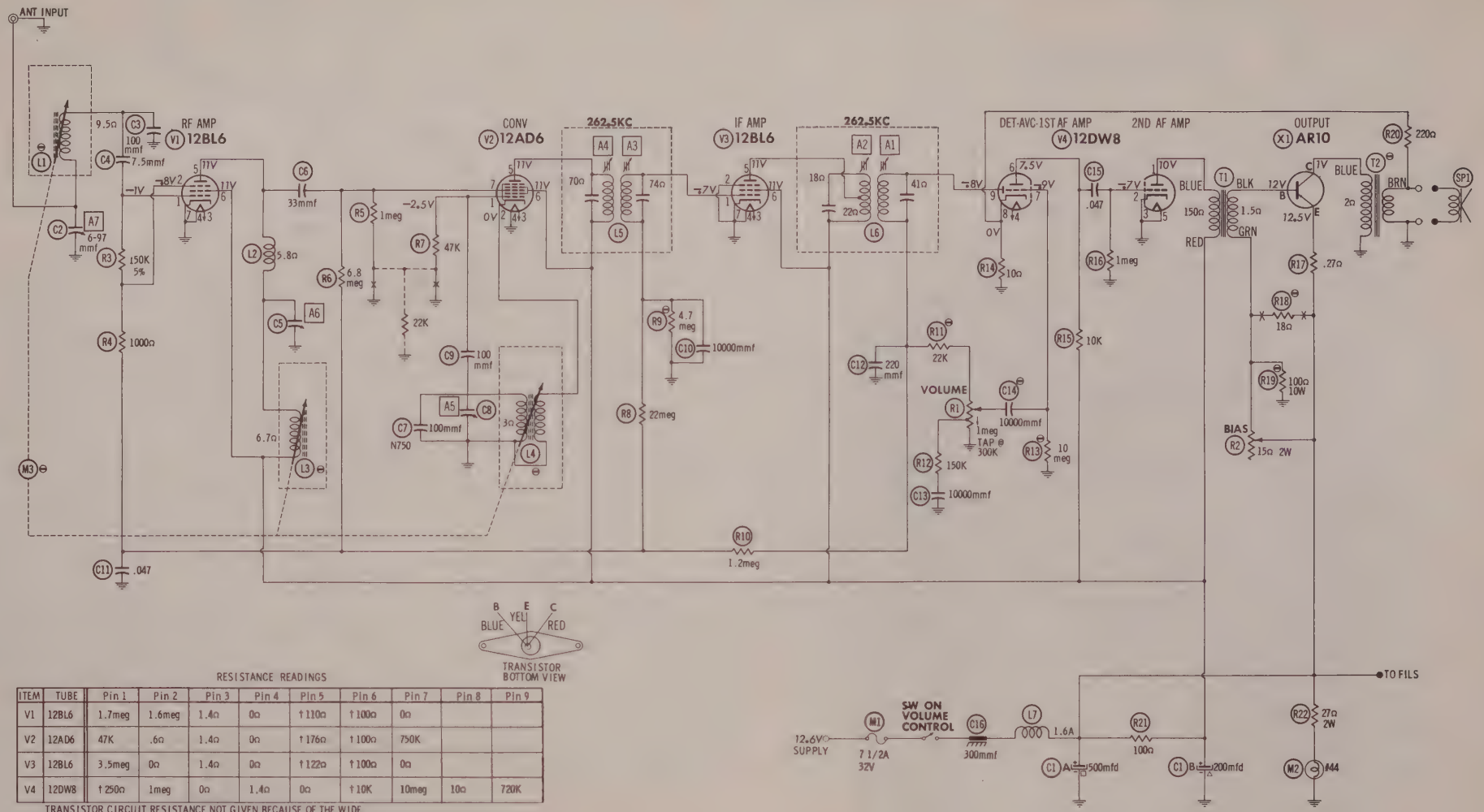
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Bezel	28-11669-1	Tuning & Volume
Knob	27-4687-24	
Dial Scale	28-11758	
Dial Glass	54-6343	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BL6	1.7meg	1.6meg	1.4Ω	0Ω	†110Ω	†100Ω	0Ω		
V2	12AD6	47K	.6Ω	1.4Ω	0Ω	†176Ω	†100Ω	750K		
V3	12BL6	3.5meg	0Ω	1.4Ω	0Ω	†122Ω	†100Ω	0Ω		
V4	12DW8	†250Ω	1meg	0Ω	1.4Ω	0Ω	†10K	10meg	10Ω	720K

TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

† MEASURED FROM JUNCTION OF C1A AND L7

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

TRANSISTOR BIAS ADJUSTMENT (R2)

The bias should be adjusted if the transistor is replaced.

1. Set R2 at mid-range.
2. Connect a low range DC voltmeter (not a VTVM) across the primary of the output transformer (T2).
3. Apply 13.2 volts DC to the receiver and allow a 15 minute warm-up period.
4. Adjust R2 for a meter reading of .95 volts. This is equivalent to a collector current of 550MA.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes posssible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

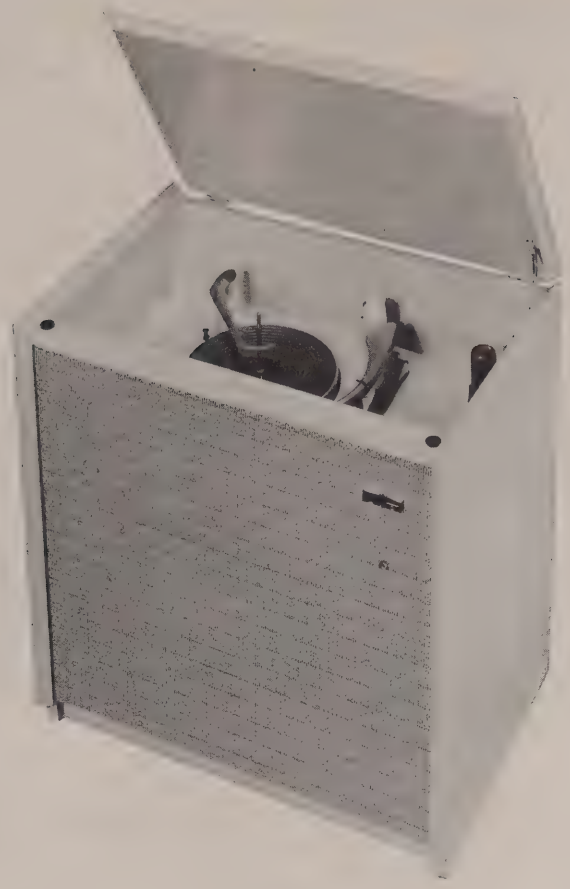
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MOTOROLA MODELS 5K21B, -A, 5K21M, -A, 5K23, -1A, 5K23CW-1, -1A, 5K23M-1, -1A (Ch. HS-608, HS-632)



TRADE NAME	Motorola Models 5K21B, 5K21M, 5K23B-1, 5K23CW-1, 5K23M-1 (Ch. HS-608) 5K21B-A, 5K21M-A, 5K23B-1A, 5K23CW-1A 5K23M-1A (Ch. HS-632)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Five)	Types 12AU7 AF Amplifier, 12AX7 AF Amp.-Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING .615 Amp. @ 117 Volts AC (63 Watts Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER BR3RC USED IN 5K21 SERIES—SEE SIMILAR MONARCH UA8—PHOTOFACT SET 381 FOLDER 11.
FOR SERVICE INFORMATION ON RECORD CHANGER VM11RC OR VM14RC USED IN 5K23 SERIES - SEE SIMILAR V-M1200A—PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10.

MOTOROLA MODELS 5K21B, -A, 5K21M, -A, 5K23, -1A, 5K23CW-1, -1A, 5K23M-1, -1A (Ch. HS-608, HS-632)

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H476

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AU7	
V2	AF Amp. - Phase Inv.	12AX7	
V3	Output	6V6GT	
V4	Output	6V6GT	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▰40	400	23B632244	AFH4-79-10	D0663.2	FP430.6	TMQ-164	Q-390	R2642 *
B	■40	400							
C	▲20	400							
D	40	25							
C2	5	10VAC	23A632250	AC-PRS10V8	BBR10-25 † BBR10-25 †	TC22 † TC22 †	TD-10-25 † TD-10-25 †	MT-0210 † MT-0210 †	R2316 *

† Connect Negative Leads together.
* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.01	400	8R121002	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C4	.02	400	8R121566	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	
C5	220		21K121698		MD-221	L10T22		5TCC-T22	10%
C6	.002	600	8R121568	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C7	.02	400	8R121566	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	
C8	.002	600	8R121568	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C9	.007	400	8K127574	P488N-007			GEM-627		
C10	10		21R124579	NPO-D1 10	DTZ-10	C10Q1C	ZT-541	5TCC-Q1	NPO
C11	.05	400	8R121567	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C12	.05	400	8R121567	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1meg	½	18B632246					Loudness, Tap @ 400K &
R2A	2meg	½	18B632245	B-76	A47-2meg-Z	Q13-139	U55	Treble 600K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	2meg	½	18B632245	B-76	A47-2meg-Z	Q13-139	U55	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

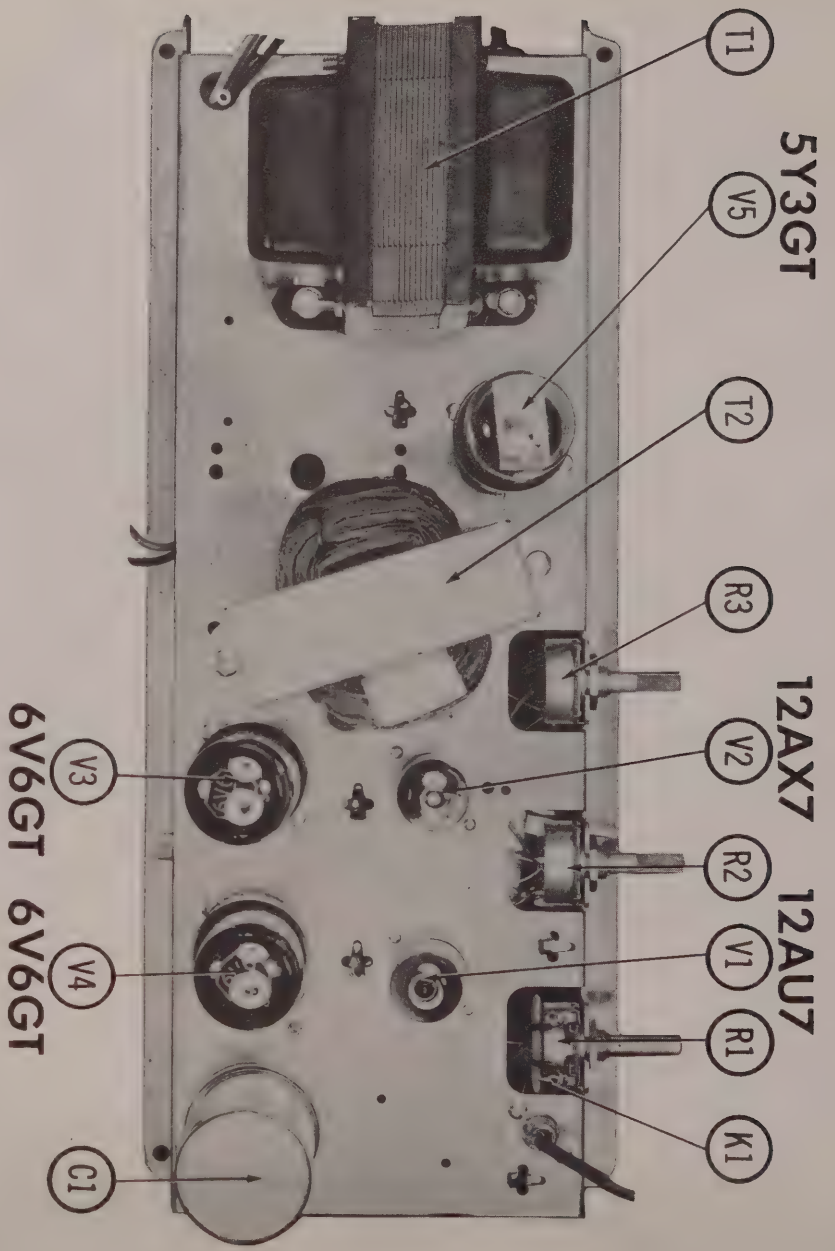
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R4	3.3meg		6K119407	
R5	100K		6K125534	
R6	3300Ω		6K121725	
R7	220K		6R6015	
R8	22K		6K119935	
R9	100K		6K125534	
R10	3300Ω		6K121725	
R11	470K		6K119406	
R12	220K		6K122322	
R13	100K	1	6R6328	
R14	4700Ω		6K121847	

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R15	5600Ω		6R6117	
R16	220K		6K122322	
R17	100K	1	6R6328	
R18	2200Ω		6R6069	
R19	100Ω		6K119402	
R20	220K		6K122322	
R21	220Ω	7(WW)	17K632247	
R22	100Ω		6K119402	
R23	270K		6R6414	
R24	1200Ω	1	6K119925	
R25	22K	1	6R6289	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .615A	560VCT @ .085A	5V @ 1.9A	25C638596	P9206 ①			PC8404 ①	24R13U ①	R-12A ①
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 1.6A									

① Drill new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6200Ω CT	6-8Ω	25C639252		A-2905①	AU-609 ①	A-3880 ①	22S74 ①	S-55X ①	① Drill new mounting hole

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	12"	PM	14-16Ω	50C639468	12AZ15	
SP2	6"	PM	14-16Ω	50K639327	6A1Z15	
SP3	4"	PM	6-8Ω	50C636446	4A1Z6	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Tone Compensation	50mmf, 100mmf 2500mmf, 2500mmf, 100K, 100K		Centralab PC-325 Sprague TC-5

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	MOTOROLA PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1		81-T *81-TB		56	*PT-2	* Not required unless original mounting mechanism is damaged.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	MOTOROLA PART No.	JENSEN PART No.	WALCO PART No.	
M2				

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Lamp	65R125595	#1847 (Alternate Type #40)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

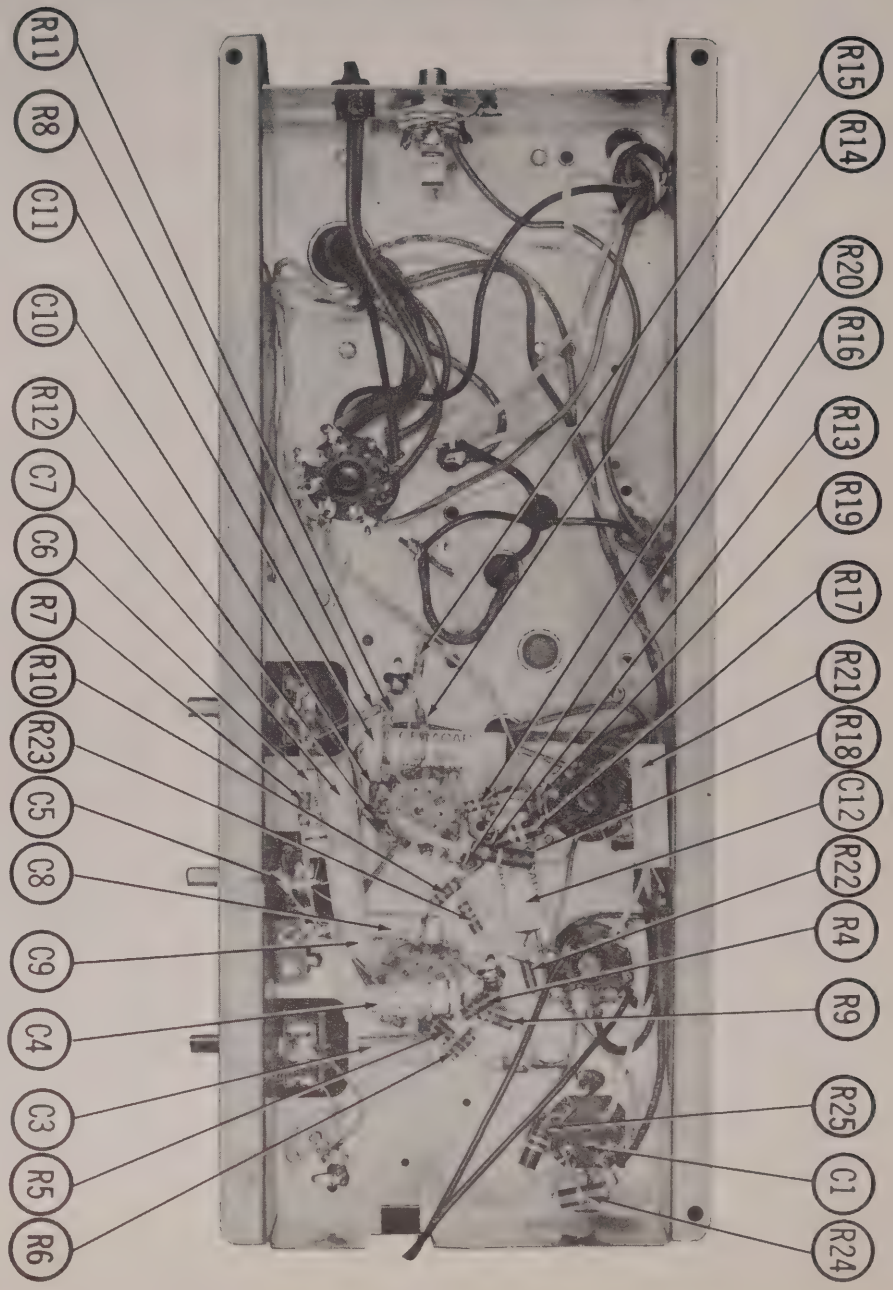
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

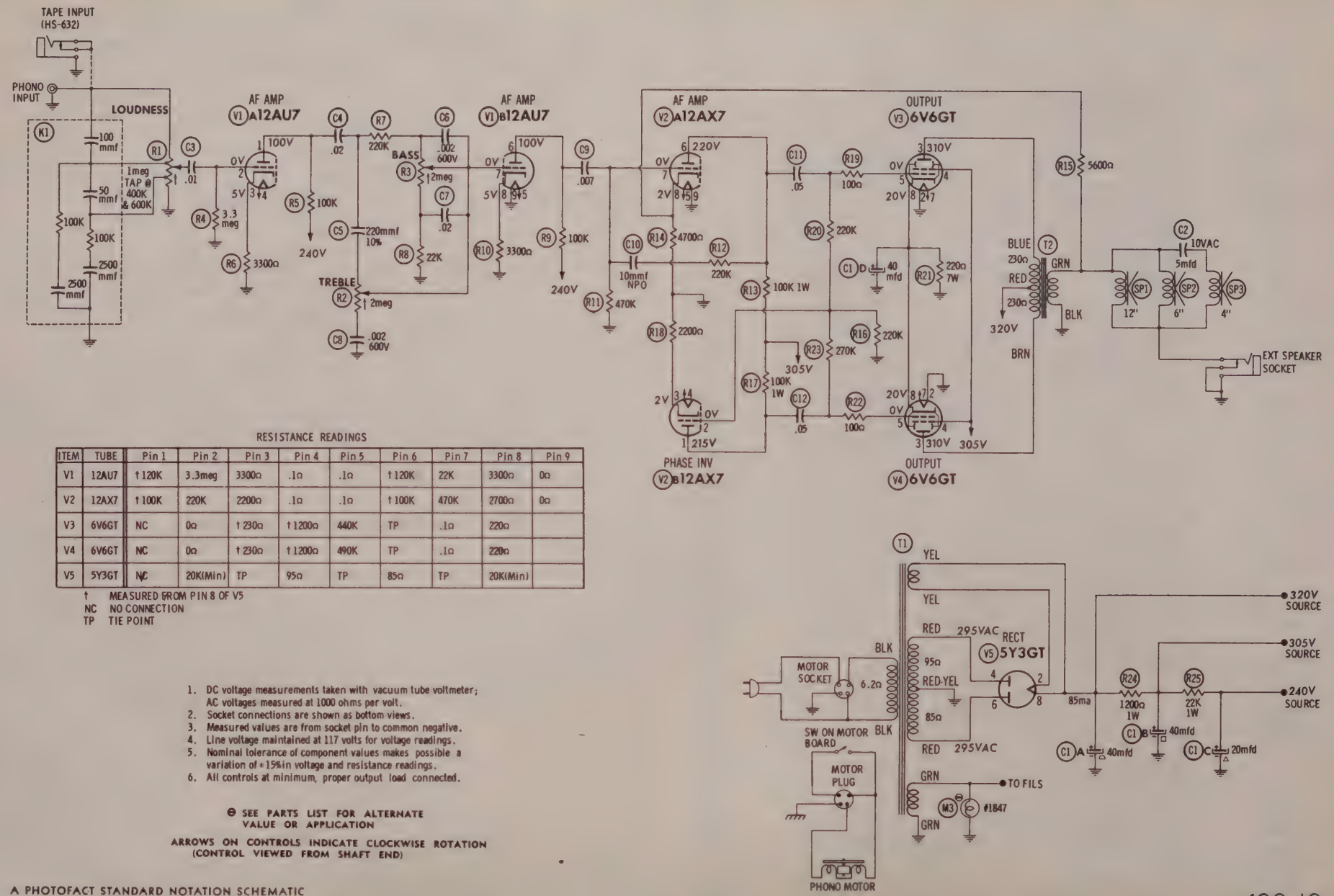
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7	†120K	3.3meg	3300Ω	.1Ω	.1Ω	†120K	22K	3300Ω	0Ω
V2	12AX7	†100K	220K	2200Ω	.1Ω	.1Ω	†100K	470K	2700Ω	0Ω
V3	6V6GT	NC	0Ω	†230Ω	†1200Ω	440K	TP	.1Ω	220Ω	
V4	6V6GT	NC	0Ω	†230Ω	†1200Ω	490K	TP	.1Ω	220Ω	
V5	5Y3GT	NC	20K(Min)	TP	95Ω	TP	85Ω	TP	20K(Min)	

† MEASURED FROM PIN 8 OF V5
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

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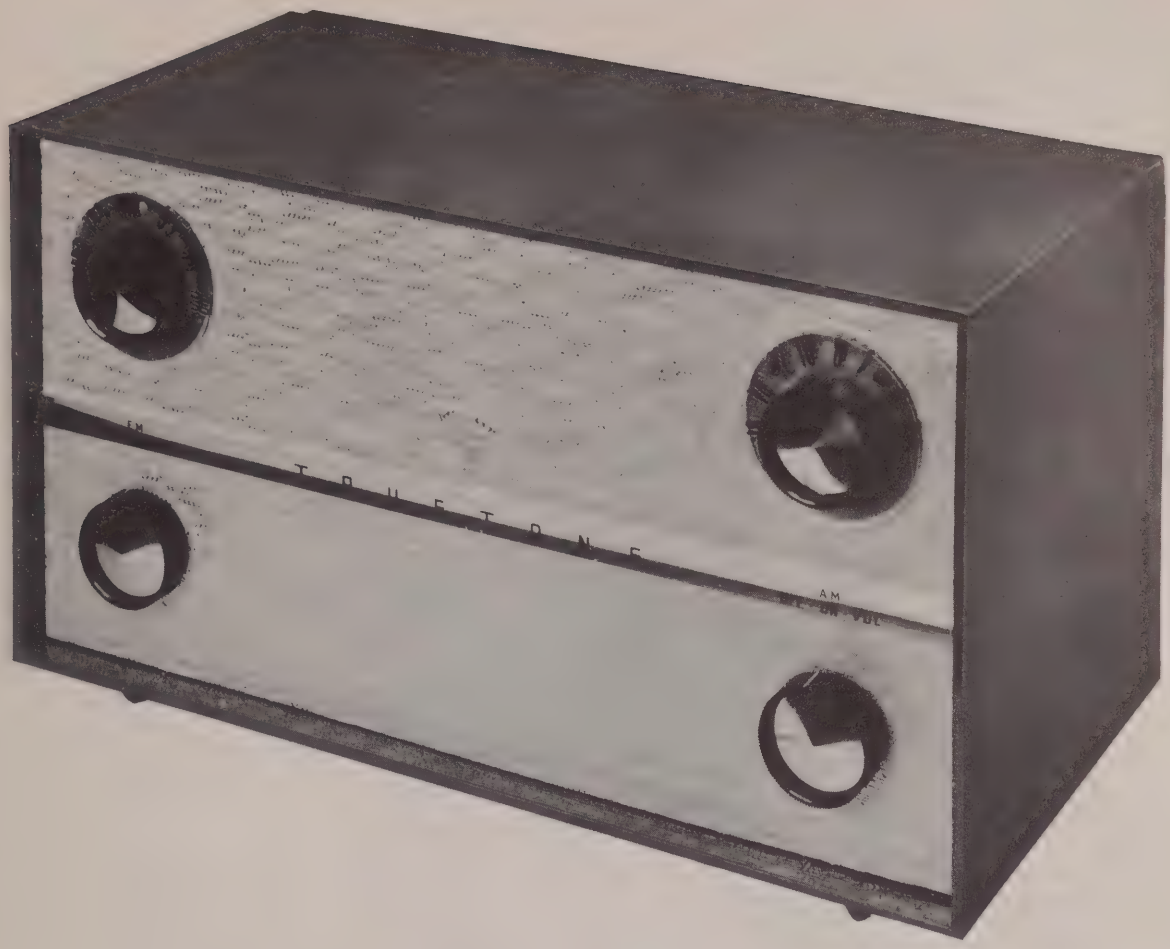
TRUETONE
MODEL D2836A

TRUETONE
MODEL D2836A



TRUETONE
MODEL D2836A

TRADE NAME	Truetone Model D2836A		
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.		
TYPE SET	AC Operated FM AM Receiver		
TUBES (Eight)	Types 12DT8 (or) 6BQ7A FM RF Amplifier, 12AU6 1st FM IF Amplifier, 12AU6 2nd FM IF Amplifier, 12AL5 Ratio Detector, 12BE6 AM Converter, 12BA6 AM IF Amplifier, 12AV6 AM Det.-AVC-AF Amp., 35C5 Output		
POWER SUPPLY	105-125 Volts AC - 60 Cycles	RATING	.30 Amp. @ 117 Volts AC (25 Watts)
TUNING RANGE—BROADCAST	540 - 1600KC	FREQ. MOD.	88 - 108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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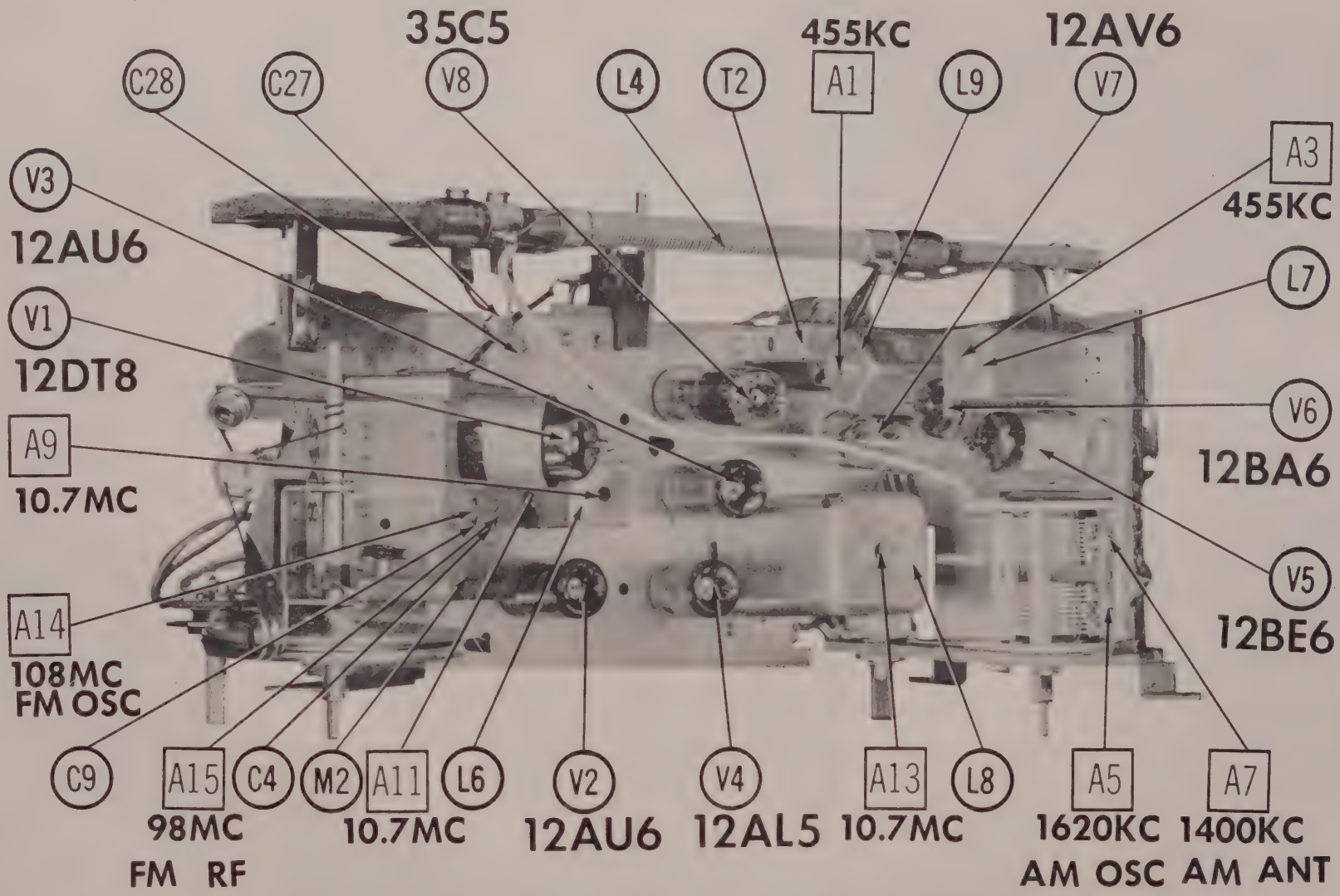
H611

SET 406 FOLDER 11



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12BE6 (V5). Low side to B-.	455KC (400∿ Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1620KC	"	"	"	A5	"
3.		Loop	600KC	"	600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output while rocking tuning gang.
4.		"	1400KC	"	Tune to 1400KC signal	"	A7	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to B-. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.005mfd	High side to pin 2 (grid) of 12DT8 (V1). Low side to B-.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to B-.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.005mfd	High side to pin 2 (grid) of 12DT8 (V1). Low side to B-.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to B-.	A8, A9, A10, A11, A12	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to B-.	A13	Reconnect C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	Across FM antenna terminals thru 270Ω resistor.	108MC	FM	108MC	DC probe to point Ⓐ. Common to chassis.	A14	Adjust for maximum deflection.
8.	"	"	98MC	"	98MC	"	A15	"

FIG. 1

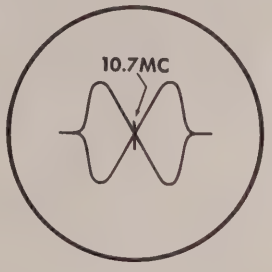
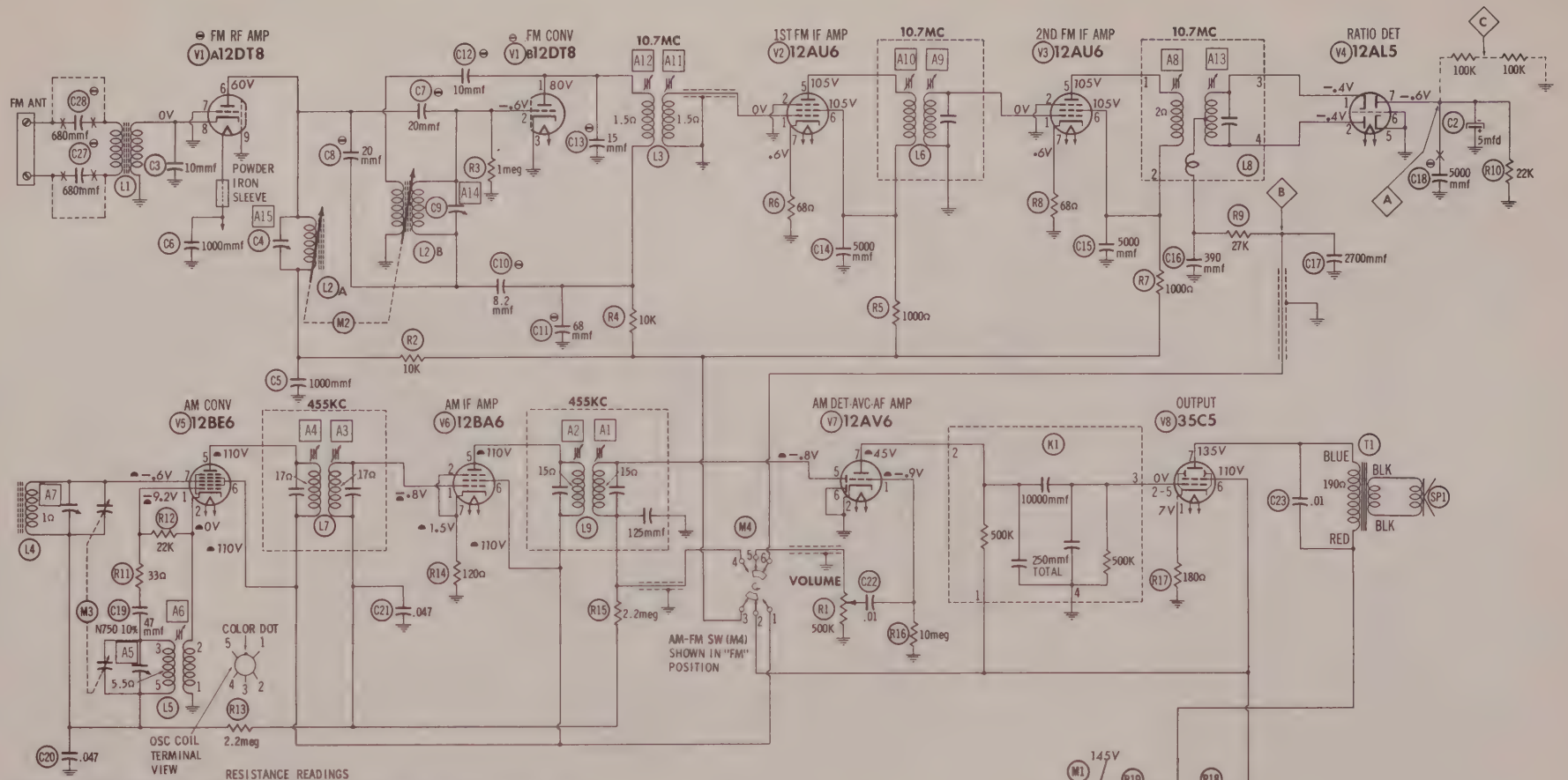


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DT8	†11K	1meg	0Ω	12Ω	0Ω	†11K	0Ω	.1Ω	0Ω
V2	12AU6	1.5Ω	0Ω	72Ω	84Ω	†2200Ω	†2200Ω	68Ω		
V3	12AU6	.6Ω	0Ω	72Ω	60Ω	†2200Ω	†2200Ω	68Ω		
V4	12AL5	530K	530K	48Ω	60Ω	0Ω	0Ω	22K		
V5	12BE6	22K	.5Ω	24Ω	36Ω	▲1200Ω	▲1200Ω	4.9meg		
V6	12BA6	2.7meg	120Ω	48Ω	36Ω	▲1200Ω	▲1200Ω	120Ω		
V7	12AV6	10meg	0Ω	24Ω	12Ω	▲500K	0Ω	†500K		
V8	35C5	180Ω	500K	120Ω	84Ω	500K	†1200Ω	†212Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM OUTPUT OF M1
▲ MEASURED IN "AM" POSITION

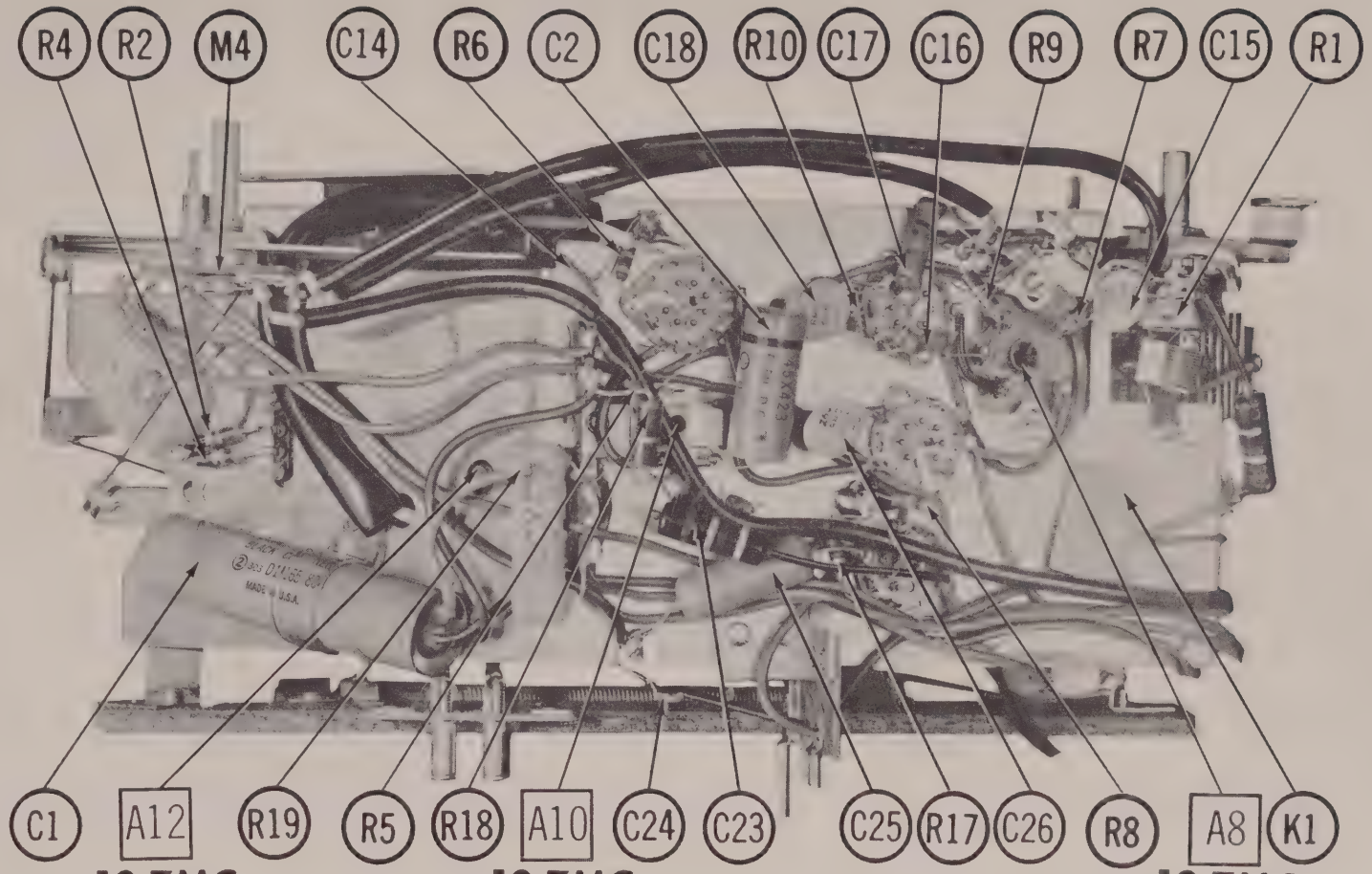
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

406-11



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. - FM Conv.	12DT8	Note 1
V2	1st FM IF Amplifier	12AU6	
V3	2nd FM IF Amplifier	12AU6	
V4	Ratio Detector	12AL5	

ITEM No.	USE	TYPE	NOTES
V5	AM Converter	12BE6	
V6	AM IF Amplifier	12BA6	
V7	AM Det. - AVC - AF Amp.	12AV6	
V8	Output	35C5	

Note 1. Some versions may use type 6BQ7A.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	70	150	45X444 ①	PRS150V8050	BBRD8515	TCD498	TDLD-2	MTD-303	TVA-2462
B	50	150							
C2	5	50	45X423	PRS50V5	BBR5-50	TC30	TD-5-50	MT-0504	TVA-1303

① Some versions may use a 50-30mfd (Part #45X440) in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	
C4									
C5	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C6	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C7	20			SI 20	D6-200	LT6Q2	UC-542	5GA-Q2	Note 1
C8	20			SI 20	D6-200	LT6Q2	UC-542	5GA-Q2	Note 1
C9									
C10	8.2								Note 2
C11	68			SI 68	D6-680	LT6Q68	UC-5468	5GA-Q68	Note 3
C12	10			SI 10	D6-100	LT6Q1	UC-5415	5GA-Q1	Note 4
C13	15			SI 15	D6-150	LT6Q15	UC-5415	5GA-Q15	Note 1
C14	5000		47X507	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C15	5000		47X507	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C16	390		47X623	SI 390	D6-391	LT6T39	UC-5339	5GA-T39	
C17	2700		47X575	SI 2700	D6-272	LT6D27	UC-5227	5GA-D27	
C18	5000		47X507	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	Note 5
C19	47		47X670	N750-DI 47	DTN-47	C10Q47U	NT-5447	5TCU-Q47	N750 10%
C20	.047	200	RCP10M2473M	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C21	.047	200	RCP10M2473M	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C22	.01	400	RCP10M4103M	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C23	.01	400	RCP10M4103M	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C24	680			BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	Note 5
C25	.047	400	RCP10M4473M	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C26	5000		47X507	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C27	680			BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	Note 5
C28	680			BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	Note 5

Note 1. Some versions may use 10mmf in this application.
Note 2. Some versions may use 9mmf in this application.
Note 3. Some versions may use 100mmf in this application.
Note 4. Some versions may use 15mmf in this application.
Note 5. Not used in some versions.

PARTS LIST & DESCRIPTION (continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	36X399	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	

* Use KR with CRL "Red Label" controls and KB with "Blue Label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R2	10K		B84103	
R3	1meg			
R4	10K		B84103	
R5	1000Ω		B85102	
R6	68Ω		B84680	
R7	1000Ω		B85102	
R8	68Ω		B84680	
R9	27K		B84273	
R10	22K		B84223	

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R11	33Ω		B85330	
R12	22K		B84223	
R13	2.2meg		B85225	
R14	120Ω		B84121	
R15	2.2meg		B85225	
R16	10meg		B85106	
R17	180Ω		B84181	
R18	1200Ω	1	C84122	
R19	22Ω	(WW)	43X386	Fuse Type

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3300Ω	3-4Ω	51X188	Z1105 ①	A-3018 ①	AU-604 ①	A-3876 ①	22S46 ①	S-16X ①	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	4" X 6"	PM	3-4Ω	12A531-A	46A15	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TRUETONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	*					
L2A	FM RF Coil	*					
B	FM Osc. Coil	*					
L3	1st FM IF	*					
L4	Loop Stick	9A2409					
L5	AM Osc. Coil	9A2408	14-1077	BC-393	69-Osc.		
L6	2nd FM IF	9A2309	16-3487	FM-254	1463		
L7	1st AM IF	9A2343	16-6758	BC-352	12-C1	RF-1	
L8	Ratio Det.	9A2260	17-3493	FM-252	1453		
L9	2nd AM IF	9A2344	16-6770	BC-354	12-C6	RF-2 ▲	
L10	Line Choke						2.7 Microhenries ①

① Not used in some versions. * Part of M2. ▲ Connect 125mmf cap. externally.

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	10000mmf, 250mmf, 500K, 500K	76X5	Aerovox PA-112-3 Centralab PC-80 Cornell-Dubilier 113TM1 Sprague T-1

RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				
	CURRENT (Measured)	TRUETONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.057A	66X18 ①	1003 ①	RS075 ①	75 ① M150 ②	① Selenium Type ② Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M2	Tuner	25A1163	FM
M3	Tuning Cap.	14A232	AM, 2 Gang (Ant. 27-275mmf, Osc. 19-138mmf)
M4	Switch	2A481	AM FM (Rotary Wafer Type)

CABINETS & CABINET PARTS

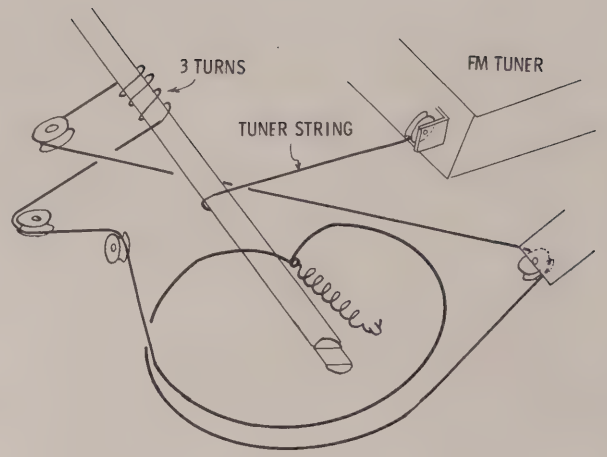
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	10A911	Tuning
Knob	10A912	Dial Scale, AM
Knob	10A910	Dial Scale, FM
Knob	10A914	AM FM, On-Off-Volume
Cabinet	#702	Shell

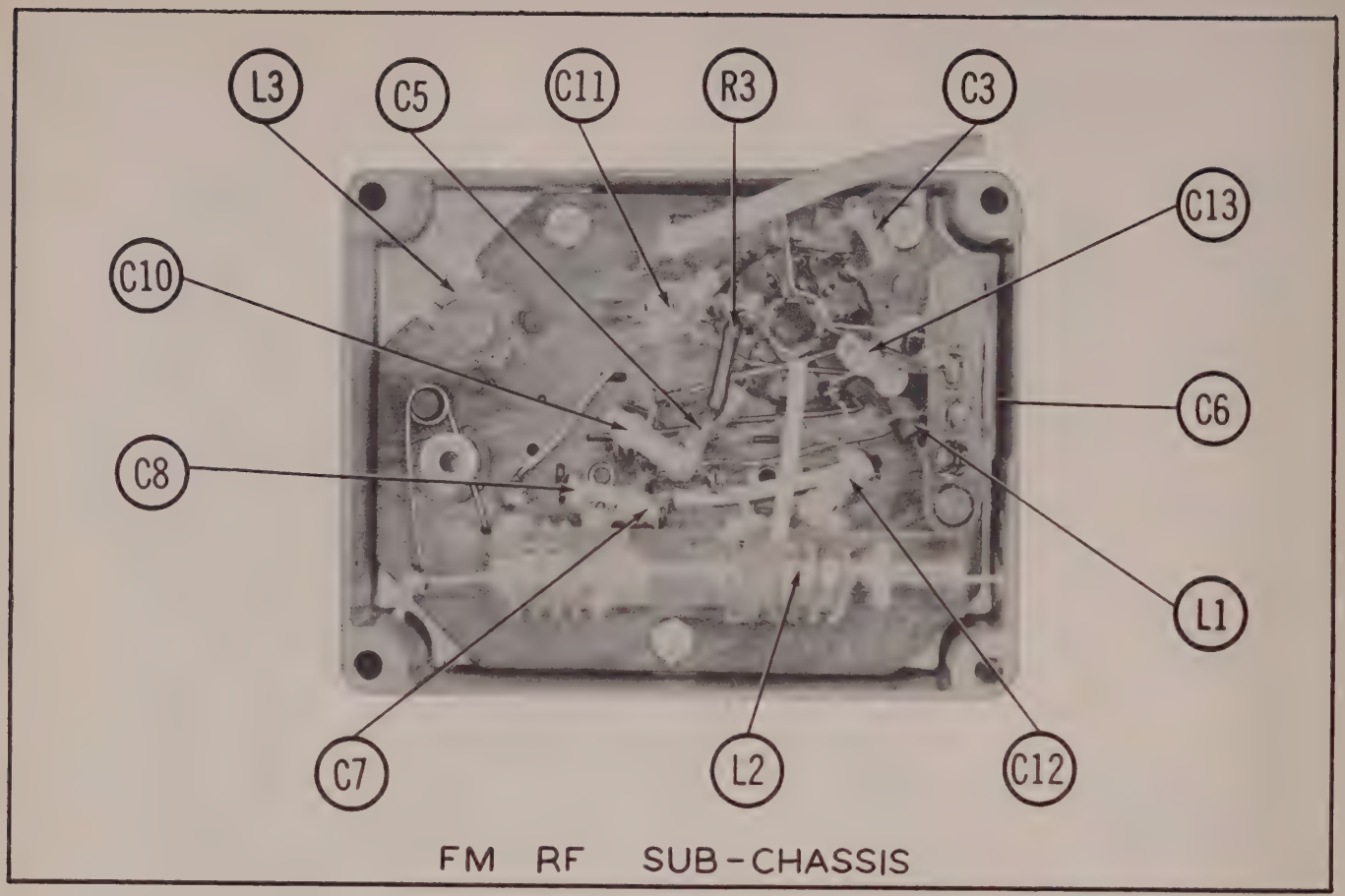
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

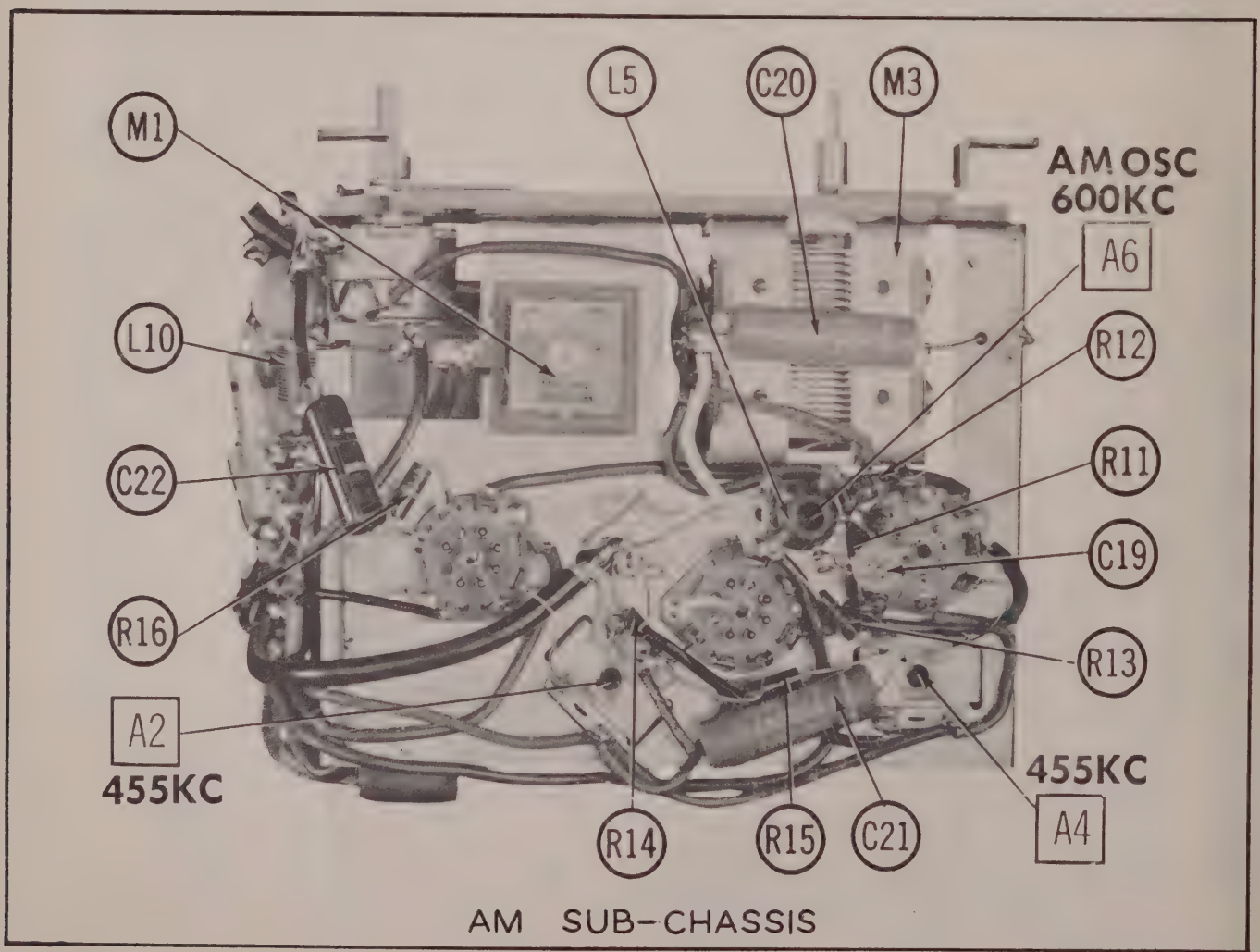
Power Cord (Interlock Type) ..... Use BELDEN No. 8874



DIAL CORD STRINGING



FM RF SUB-CHASSIS



AM SUB-CHASSIS

PHOTOFACT* Folder

*TRADE MARK

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WILCOX-GAY
MODEL 772

WILCOX-GAY
MODEL 772

GENERAL INFORMATION

Model 772 Wilcox-Gay "Recordio" features pushbutton control for each tape transport mode. For example, merely pressing a button gives high speed wind, either forward or reverse. An automatic tape shut-off switch assures that as the supply reel empties the machine will shut itself off. Double-track recording is used, giving two full length recordings on a reel to tape. Any size reel up to 7" can be used. A "Tape Timer" enables the operator to locate immediately any selection on a recorded tape. Two neon record level indicators simplify the recording level setting.

New recordings can be made on previously recorded tape since the erase head is automatically positioned when the "Record" button is pressed, or the same recording can be made from a radio, television receiver, phonograph, or telephone, in addition to those made directly from the microphone.

Model 772 has two tape speeds, 7 1/2 and 3 3/4 inches per second. Using both tracks of the tape, the recording time is as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" Reel (600ft.)	1 Hour	1/2 Hour
7" Reel (1200ft.)	2 Hours	1 Hour

This "Recordio" is designed to operate on 60 cycle, 117 volts, AC supply only. Before connecting to your line supply, be absolutely certain that it agrees with the foregoing specifications. Severe Damage Will Result If Connection Is Made To A Direct Current (DC) Line.

Manufactured by:

Wilcox-Gay Corporation
Charlotte, Michigan

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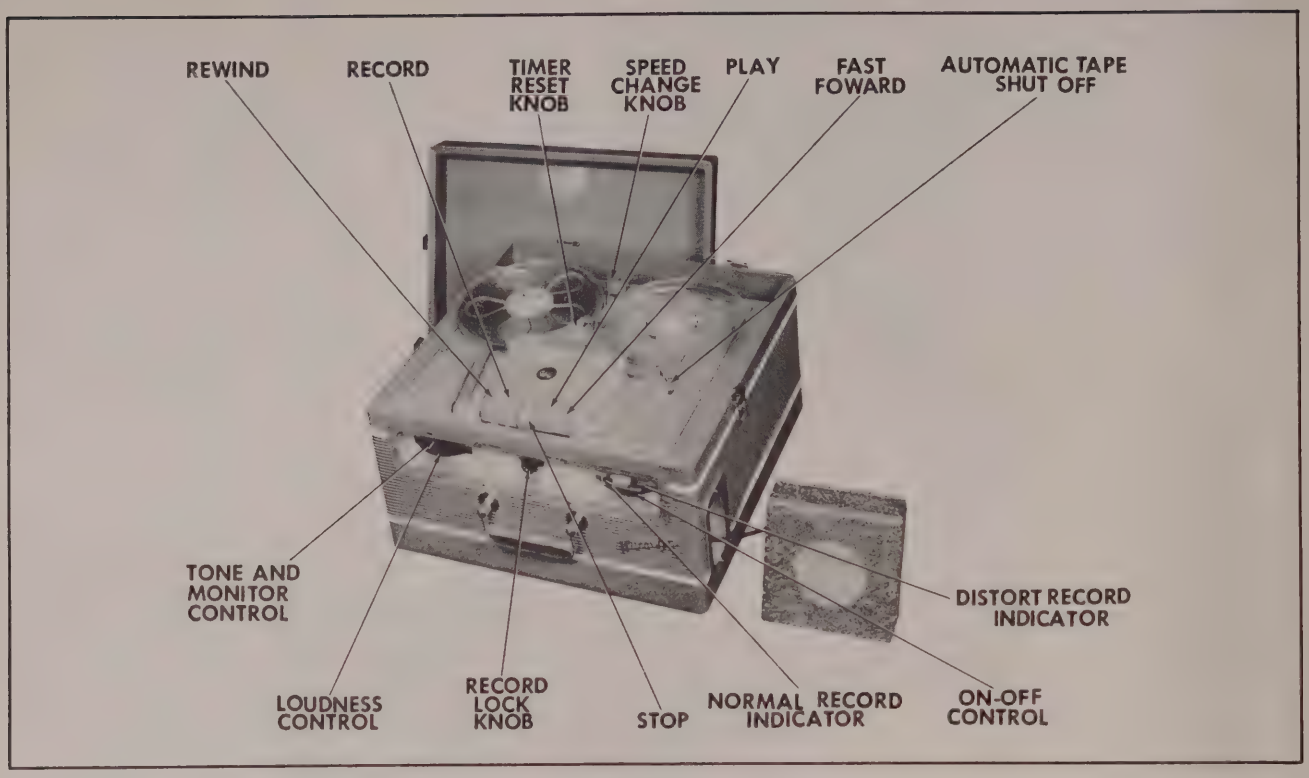

FIGURE 1

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SPECIFICATIONS

Size — 14 1/2" x 15 1/2" x 10".

Weight — Approximately 37 lbs.

Speed Selector — 3 3/4 and 7 1/2 I.P.S.

Reels -- Uses 3", 5", or 7".

Push-Pull Amplifier — Delivers 8 watts of undistorted output.

Transistorized — Uses transistor in preamplifier stages.

Tube Complement — Transistor (2N133PNP), 6AV6, 12AX7, 6AQ5(2), 5Y3GT.

Radio-Phono-T.V. Input — This low level input permits recording from Radio, Phono or T.V. Also used as low level constant output in 'Play' position.

Frequency Response — 65 to 12,500 C.P.S.

Wow and Flutter — .3% @ 7 1/2 I.P.S.
.5% @ 3 3/4 I.P.S.

Signal To Noise Ratio — 35 db minimum.

Power Requirements — 117 volts. AC, 60 cycles. Power Consumption — 110 Watts.

Preparation For Operation

1. Remove the AC cord, reel of tape, empty reel, and the microphone from the case storage compartment.

2. Depress the Stop button.

3. Insert the AC cord into a convenient wall receptacle of the proper rating and into the AC input on the cabinet.

4. Set the speed change knob to 3.75 or 7.50 as desired.

CAUTION: Do not turn speed change knob unless "Stop" button is depressed.

When the Forward or Rewind buttons are depressed, the Record and Play buttons are locked so that they cannot be pressed down, with the possibility of spilling the tape. The buttons should always be pressed down firmly until they latch. The Stop button must be depressed before changing functions or speeds of the Recordio.

IMPORTANT: Always depress the Stop button when the Recordio is not in use.

Threading The Tape (Refer to Figure 2)

1. Place a reel of tape on reel pan (17) making certain that the reel slots engage with the protrusions on the pan. Place an empty reel on reel pan (15) and again make certain that the reel slots engage with the protrusions on the pan.

2. Unwind about 14" of tape from the supply reel. Hold a section of tape straight with both hands and insert the tape in the tape slot making sure that the dull coated side of the tape faces away from the operator (rear of the unit).

3. When it is desired to utilize the automatic tape shut-off feature, thread the tape as shown by the dotted line in Figure 3. To thread the tape in the usual manner, do so as shown by the solid line in Figure 3.

NOTE: The tape may be threaded for Automatic Tape Shut-Off or in the usual manner.

4. Insert the free end of the tape into one of the three slots in the hub of the take-up reel and while holding the end in place, give the reel two or three turns until the tape is secured to the reel.

To Record From Microphone

1. Turn the On-Off switch to the left and allow about 30 seconds for the unit to warm up. The left neon light will glow when the unit is "On".

2. Move the "Record Lock Knob" to the left with the left hand. This releases the safetylock which prevents accidental erasure. See Figure 1.

3. Depress the Record button (while holding Record Lock Knob to the left) until it latches.

4. Adjust the loudness control until the right hand neon indicator glows as brighty as the left hand indicator. If the loudness control is set too high the left hand indicator will not light and will cause distortion. For proper recording level both neon indicators should glow.

5. The Tone Control is automatically disconnected when recording. When recording from a radio, set the radio tone control for maximum treble.

6. At any time during the recording the auxiliary switch on the tone control may be operated to monitor the recording. This allows the Recordio speakers to operate while the recording is being made. Care must be taken to keep the microphone far enough from the recorder to prevent squeal due to acoustic feedback.

To Record From Radio, Television Receiver, Or Phonograph

1. Insert the phonograph phono plug into the Radio, PA, Phono input.

2. For Radio or T.V. recording, connect patch cord (part No. C20.233) to the voice coil terminals of the Radio or T.V. receiver speaker by means of the alligator clips. Plug into Radio, PA, Phono jack.

3. Proceed with recording as described under "To Record From Microphone".

NOTE: Remove patch cord from Radio, PA, Phono jack after recording is completed.

To Use Second Track

1. Depress the Stop button when all of the tape has been wound onto the take-up reel.

2. Remove reel containing tape and place on left-hand (supply) pan.

3. Place empty reel on right-hand (take-up pan).

4. Thread the tape and proceed with the recording as previously described.

To Erase Tape

When the Record button is depressed, the erase head is automatically positioned, erasing any previous recording while a new one is being made. Material no longer needed may be erased, without recording, by depressing the Record button and turning the loudness control to the minimum volume position. One track is erased at a time. To erase the second track, reverse the reels and repeat the above operation.

To Play Recordings

1. Thread tape as described under "Threading The Tape".

2. Set the Speed Change Knob to the speed at which the recording was made.

3. Depress the Play button until it latches.

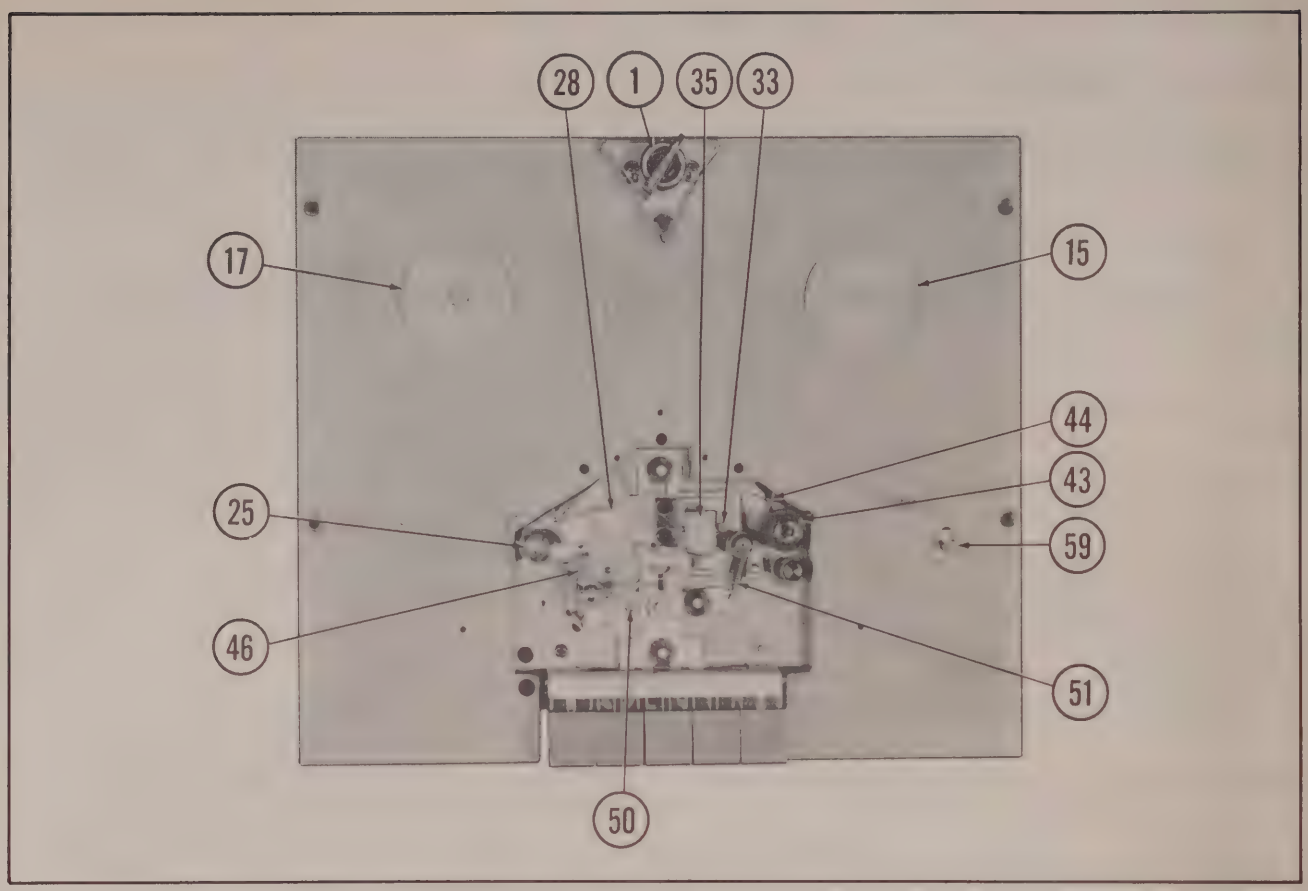


FIGURE 2

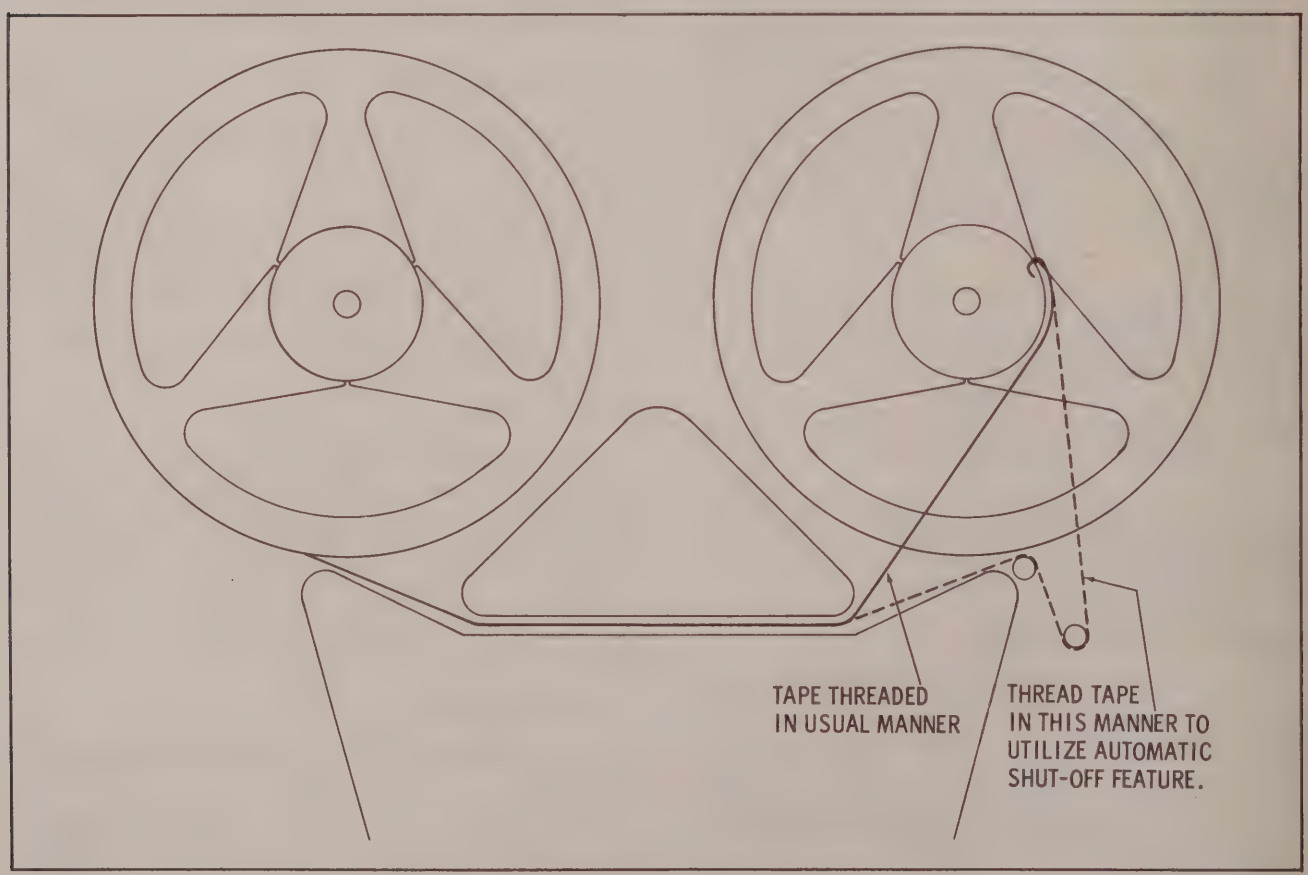


FIGURE 3

4. Adjust the Loudness and Tone controls for desired listening level.

High-Speed Forward Or Rewind

When it is desirable to play a certain portion of the tape over again it is not necessary to rewind the entire reel. By depressing the Forward or Rewind button the tape will advance (or reverse) at a rapid speed.

Several minutes of normal recording can be skipped in a few seconds by using the Forward and Rewind buttons.

DISASSEMBLY INSTRUCTIONS

To Remove Unit From Case

1. Remove four Phillips head screws from the top plate.

2. Remove the push-on type Record lock knob.

3. Remove six Phillips head wood screws from the control escutcheon on front of the case. Remove escutcheon.

4. Lift unit out of case, removing speaker plug from amplifier chassis before removing unit completely.

To Remove Amplifier From Transport Mechanism

1. Remove the motor and power transformer plug from the amplifier chassis.

2. Remove the two head leads from the play-record head terminal lugs.

3. Remove two slotted-head machine screws from each end of the amplifier chassis.

4. Carefully lift the amplifier away from the transport mechanism and disconnect the play-record switch actuating link.

MECHANICAL ADJUSTMENTS

Pressure Pad Adjustment (Refer to Exploded View)

1. Remove front escutcheon (14).

2. Depress the Play button. Do not turn the Recordio on.

3. Use a pencil type postal scale and check the amount of pressure necessary to just pull the right-hand pad away from the play-record head. The test should be made at the end of the pressure pad mounting spring. If necessary, adjust locked adjustment screw (50) until a reading of 1 3/4 oz. ± 1/4 oz. is obtained.

4. The guide post pressure pad (left-hand pad) is adjusted by bending the pressure pad spring (49). It must be adjusted for minimum pressure against the tape.

After the adjustments are made, depress the Stop button and replace the front escutcheon.

Erase Head Adjustment

1. With tape properly threaded, turn recorder on and depress the Record button. Allow tape to run for a few seconds then turn recorder off, but leave Record button depressed.

2. With escutcheons (9 and 14) removed check erase head (28) to see if it is parallel with the tape.

3. Check to see if the top edge of the tape coincides with the top end of the diagonal slot in the erase head (junction of long diagonal slot and short vertical slot). See Figure 4. To adjust the level of the tape, loosen set screw (24), and rotate tape guide post (25) to move the tape up or down. See Exploded View.

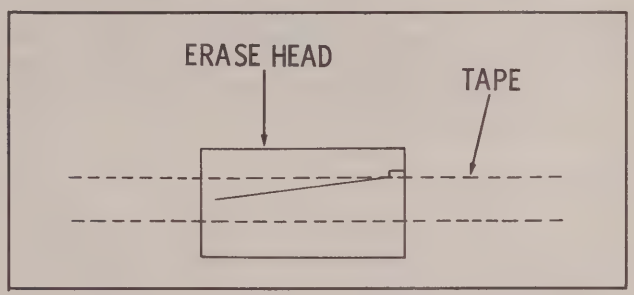


FIGURE 4. ERASE HEAD ADJUSTMENT

Brake Shoe Adjustment

1. With all push buttons in the up position the brake pads (78) should clear brake drums (118 and 119) by approximately 1/8".

2. Depress the Stop button while observing the brake pads. Both brake pads must contact the brake drums at the same time and with equal pressure.

3. If necessary, adjust by bending brake spring (77).

CLEANING

The majority of defects, other than wear or breakage, can be traced to dirty surfaces. The play-record head (35), capstan, and pressure roller (43) are subject to an accumulation of tape coating oxide, which is worn off the tape as it passes these parts. This accumulation should be periodically removed since it will cause faint recording and poor play-back. Wipe off the above surfaces carefully with a clean cloth. If dirt is caked or hard and will not come off with a dry cloth, dampen cloth slightly with alcohol.

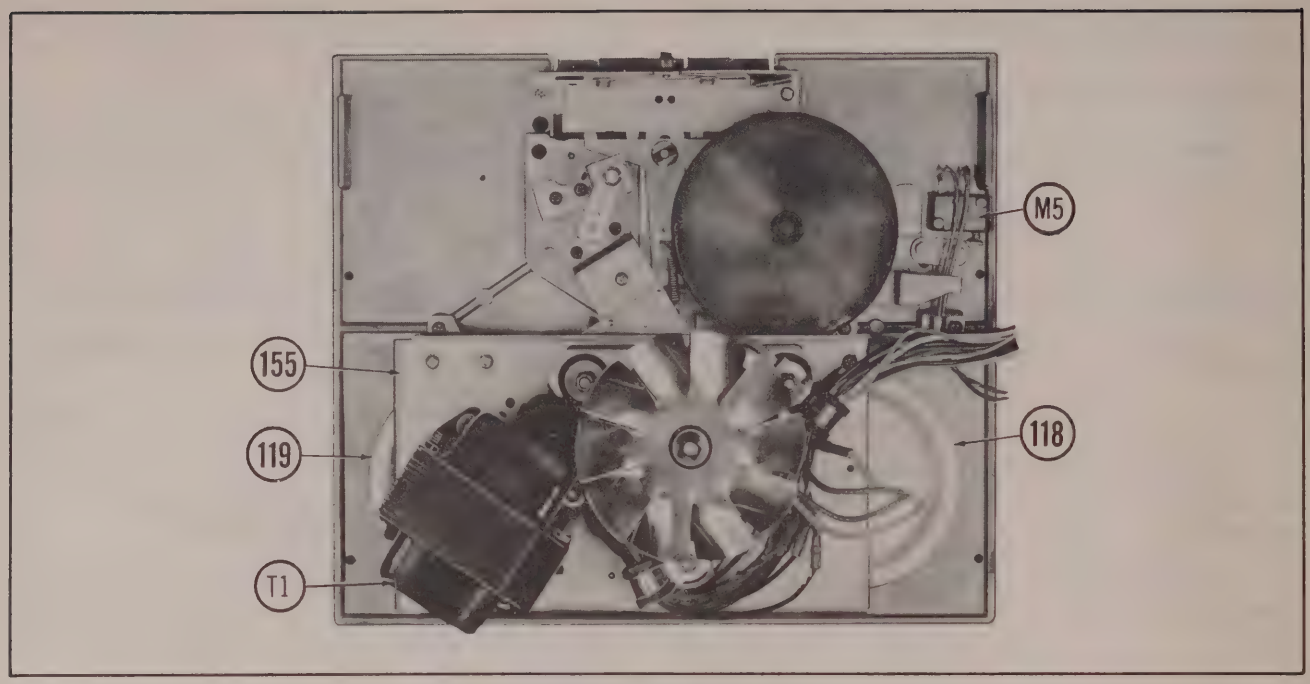


FIGURE 5

ELECTRICAL ADJUSTMENTS

Record Hum Adjustment

Place unit in Record position, Volume at maximum, Tone full bass. Short out bias at (L1). Connect a VTVM to the External Speaker Jack. Set the VTVM to AC volts, 3 volt scale, with a 3.3 ohm load resistor across the meter. Adjust record hum control (R2) for minimum deflection on meter.

Head Alignment

Use standard RCA 6KC or 12KC alignment tape for this procedure.

Remove front and rear escutcheons. Clean pole pieces of play-record head, using a good commercial head cleaning agent, naptha, or lighter fluid. Proceed as follows:

1. Thread alignment tape on recorder, turn Volume on full, Tone full treble. Connect VTVM to External Speaker Jack. Set meter for AC volts, 3 volt range.

2. Place unit in Play position, 7 1/2" speed. Decrease Volume to point where output is 1 volt on meter. Rotate play-record head adjustment screw (item 33, Figure 2) until maximum point of deflection is found.

3. Gently press pressure pad at point to the extreme right of play-record head. Output should not increase. If a gain is noted a slight re-adjustment of pressure pad is necessary. (See "Pressure Pad Adjustment" under Mechanical Adjustments.)

Indicator Lights (Normal and Overload)

The "normal" and "overload" indicator lights are pre-set and there are no firing adjustments. If it becomes necessary to change either light, both should be replaced with a matched set of neon indicators to insure proper recording level indication.

Bias Adjustment

1. Set line voltage at 117 volts.

2. Place unit in Record position and turn Loudness control to maximum volume position.

3. Connect VTVM between Ground and Pin #7 of (V4). Place meter selector on AC volts, 10V range.

4. Adjust trimmer (C20) for 2 volts on meter.

LUBRICATION

All rotating parts are provided with generous size oilite bearings which are factory lubricated. Under normal use no further lubrication is necessary. In heavy duty service, the following parts should be lubricated once a year with a drop of #10 motor oil:

1. The top and bottom motor bearings.
2. The capstan bearing.
3. Pressure roller (43) bearing.
4. All idler and drive wheel bearings.
5. The reel spindle bearings.

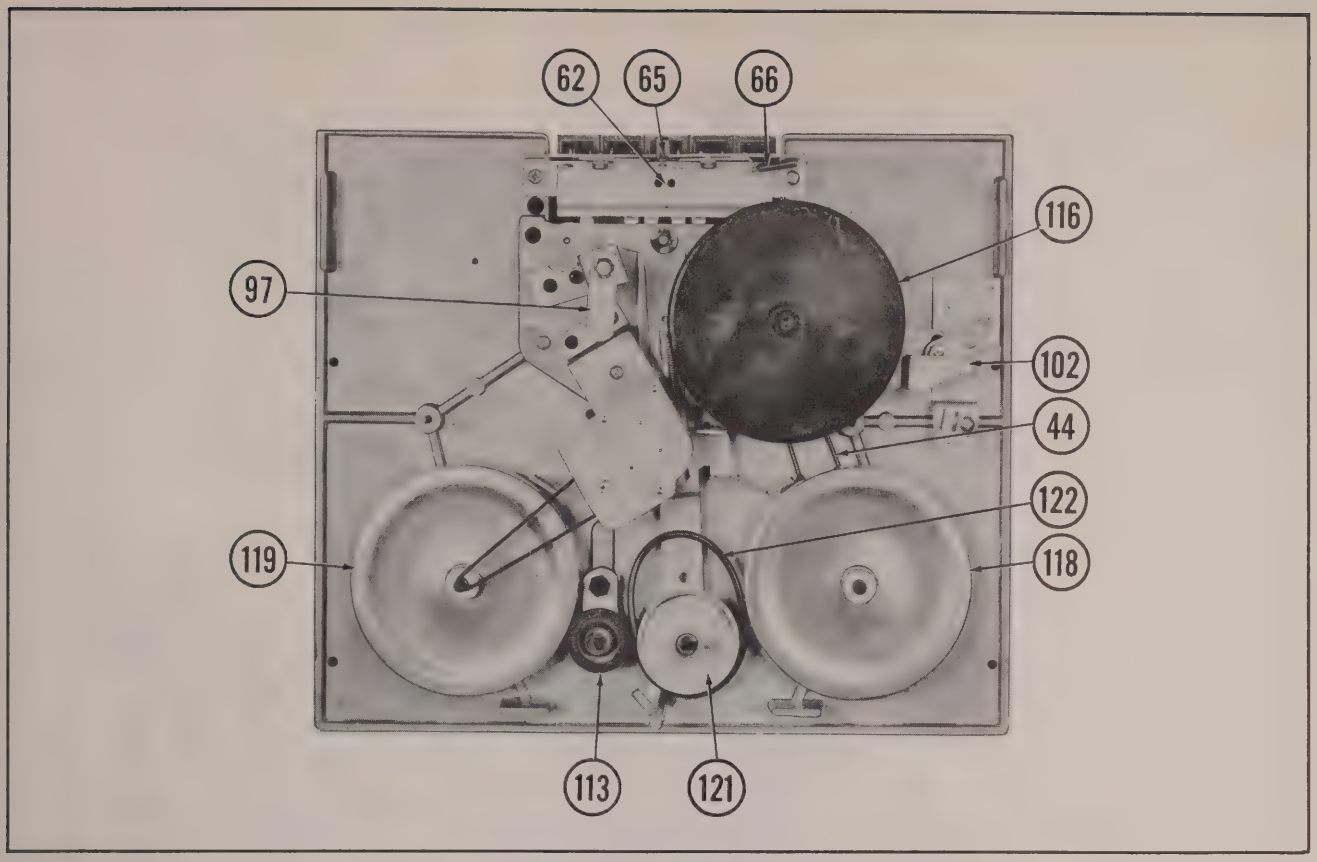


FIGURE 6

The basic rule is — do not over lubricate. Oil must be kept off all rubber idlers, belts, and periphery of flywheel and off parts that might transfer oil to them. Always wipe excess lubricant from parts that have been lubricated.

An occasional cleaning out of foreign matter under the plastic push-button cover is desirable, and a drop of oil on the sliding lever members is advisable.

TROUBLE CHART

Symptom	Cause	Remedy
Push buttons fail to latch into position.	1.Lock plate spring (62) disconnected or broken.	1.Connect or replace spring (62).
No drive in Play or Record.	1.Idler tension spring (146 and 153) disconnected or broken.	1.Connect or replace springs (146 and 153).
	2.Idler slide plate (135) binding on bushing (136), thus preventing idler wheel (133) from moving forward.	2.Check slide plate (135) and bushing (136) for burrs. Clean with alcohol.
Tape fails to wind on take-up reel during Play or Record.	1.Reel drive spring (44) loose, disconnected, or broken.	1.Connect or replace spring (44).
	2.Reel pan shaft (15) binding.	2.Clean foreign matter from bearing surface and shaft with a clean cloth. Lubricate with one drop of #10 motor oil.
No fast Forward or Rewind.	1.Idler lever tension spring (76) disconnected or broken, thereby not actuating idler lever (99).	1.Connect or replace spring (76).
	2.Idler drive belt (122) broken or not properly connected.	2.Replace idler drive belt (122).

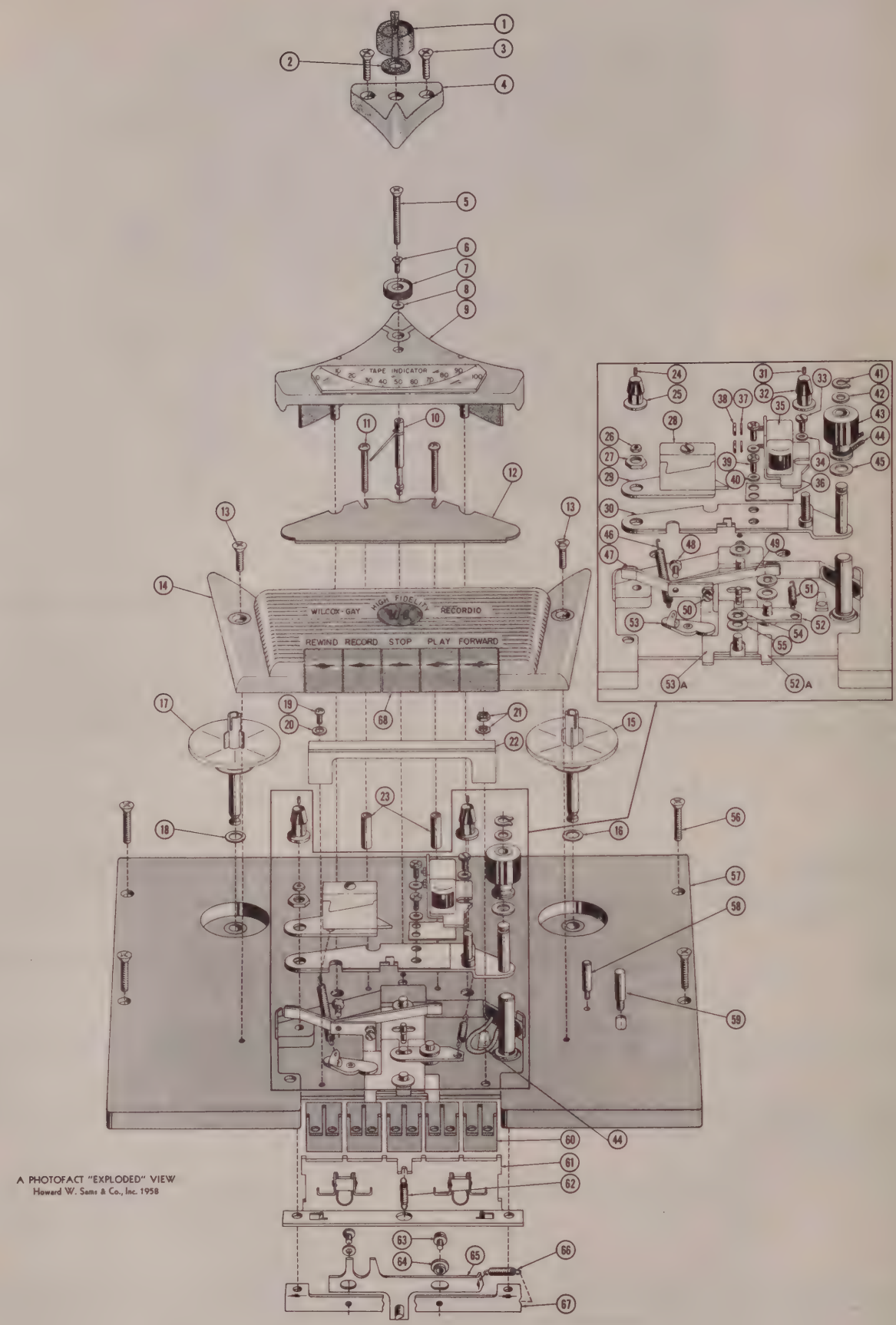


FIGURE 7A . EXPLODED VIEW OF PARTS ABOVE BASEPLATE

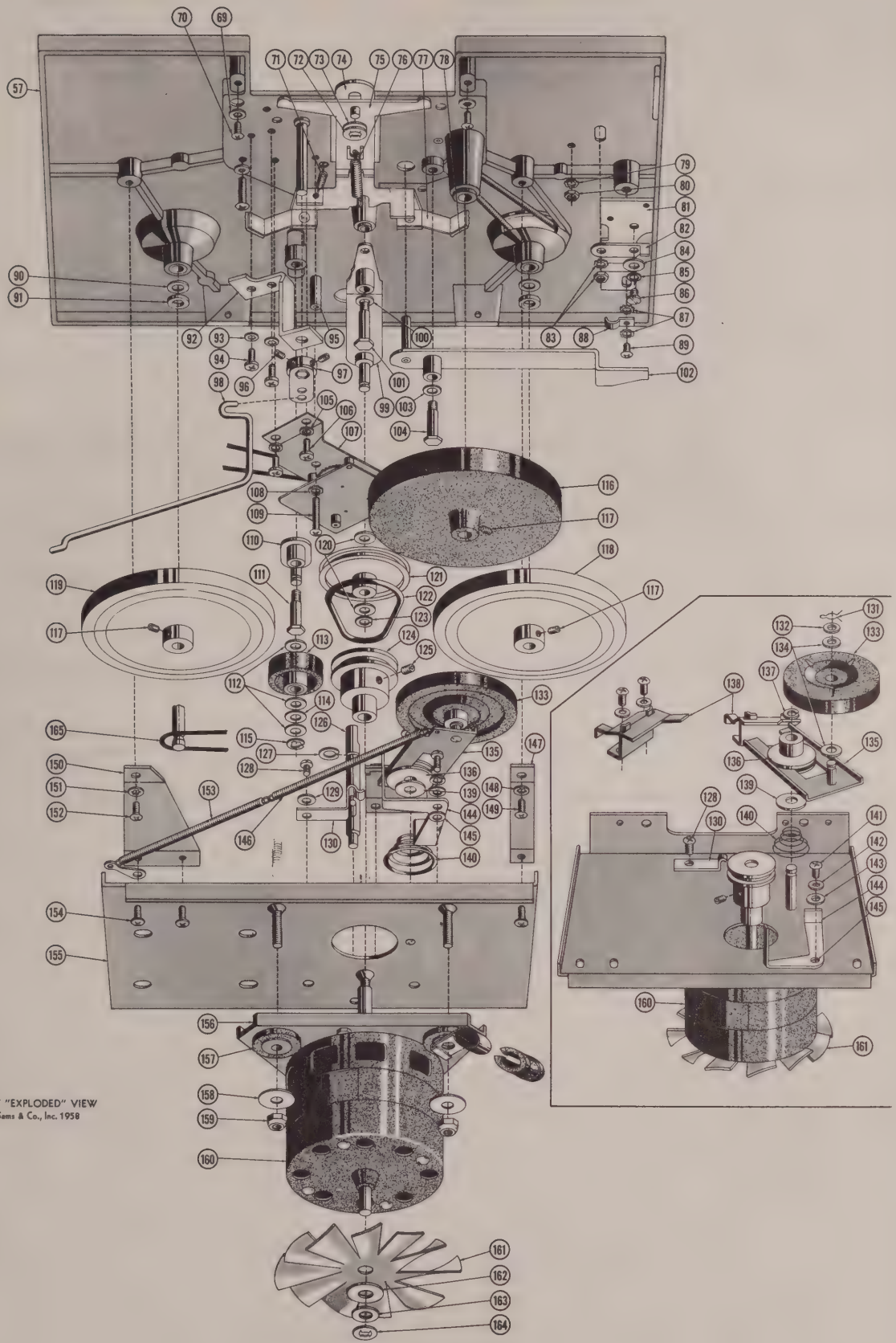


FIGURE 7B. EXPLODED VIEW OF PARTS BELOW BASEPLATE

TROUBLE CHART (Cont.)

Symptom	Cause	Remedy
Tape spills when Stop button is depressed during fast Forward or Rewind.	1.Brake shoes out of adjustment.	1.See "Brake Shoe Adjustment" under Mechanical Adjustments.
	2.Brake pads worn out or missing.	2.Replace brake pads.
"Wow" during operation of recorder.	1.Brake return spring (71) disconnected or broken.	1.Connect or replace spring (71).
	2.Check all driving surfaces for oil or foreign matter.	2.Clean with a cloth and alcohol.
"Flutter" during operation of recorder.	1.Dirty play-record head (35), pressure pads, capstan shaft, or pinch roller (43).	1.Clean as described under "Cleaning".
No erase or erase is incomplete.	1.Erase head tension spring (46) disconnected or broken.	1.Connect or replace spring (46).
	2.Erase head (28) not adjusted properly.	2.See "Erase Head Adjustment" under Mechanical Adjustments.
Does not record.	1.Faulty microphone or cord.	1.Replace if necessary, after checking recorder with another type of input.
	2.Faulty input jack.	2.Check and replace if necessary.
	3.Faulty tube.	3.Check tubes.
	4.Low bias voltage.	4.See "Bias Adjustment" under Electrical Adjustments.
	5.Open play-record head (35).	5.Check continuity. After checking for continuity, demagnetize head.
Motor and amplifier inoperative.	1.Power supply defect.	1.Check voltages per schematic.
	2.Damaged power cord.	2.Repair or replace.
	3.Defective On-Off switch.	3.Replace switch.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamp. -AF Amp.	12AX7	
V2	AF Amplifier	6AV6	
V3	Output	6AQ5	
V4	Output	6AQ5	
V5	Rectifier	5Y3GT	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N133	Bias Osc. -Preamp.		2N133	2N34	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Wilcox-Gay PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▬20	450	B-5.421-7	AFH4-67	D0520	FP376.5		Q-340	TVL-4724.2
B	▲20	450				TT25X20			
C	■20	450							
D	20	25							
C2	10	25	B-5.455	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C3	50	6	B-5.448	SRE6V50	BBR50-6	TT6X50	TD-50-6	MMT-650	TVA-1100

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	Wilcox-Gay PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	470		C-4.109-41	SI470	D6-471	LT6T47	UC-5347	5GA-T47	
C5	470		C-4.109-41	SI470	D6-471	LT6T47	UC-5347	5GA-T47	
C6	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C7	.047	400	D-4.148-58	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C8	20000		C-4.115-23	BPD-02	DD-203	BYB6S2		5HK-S2	Note 1
C9	50		C-4.151-1	1468-00005	D6-500	5W5Q5	MC225	1FM-45	
C10	1500		C-4.109-13	SI1500	D6-152	LT6D15	UC-5215	5GA-D15	
C11	20000		C-4.115-23	BPD-02	DD-203	BYB6S2		5HK-S2	
C12	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C13	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C14	1500		C-4.109-13	SI1500	D6-152	LT6D15	UC-5215	5GA-D15	
C15	330		C-4.109-39	SI330	D6-331	LT6T33	UC-5333	5GA-T33	Note 2
C16	.035	400		P488N-033		CUB6S33	GEM-4133	6TM-S35	Note 3
C17	100		C-4.109-40	SI100	D6-101	LT6T1	UC-531	5GA-T1	
C18	.035	400		P488N-033		CUB6S33	GEM-4133	6TM-S35	Note 3
C19	330		C-4.109-39	SI330	D6-331	LT6T33	UC-5333	5GA-T33	Note 2
C20	5-70		B-4.150						
C21	2000			1467-002	D6-202	1W5D1	MC457	1FM-22	
C22	470		C-4.151-2	1467-00047	D6-471	5W5T47	UC-5347	1FM-347	
C23	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C24	.5	100		P288N-5		CUB2P5	GEM-205	2TM-P5	
C25	470		C-4.151-2	1467-00047	D6-471	5W5T47	UC-5347	1FM-347	
C26	1500		C-4.109-13	SI1500	D6-152	LT6D15	UC-5215	5GA-D15	
C27	100		C-4.109-40	SI100	D6-101	LT6T1	UC-531	5GA-D1	
C28	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C29A	4000		C-4.131-2	BPD-2X004	DD-402	BYC6DD4	DCD524	5HK-2D4	
B	4000				DD-402				Dual
C30	100		C-4.109-40	SI100	D6-101	LT6T1	UC-531	5GA-T1	

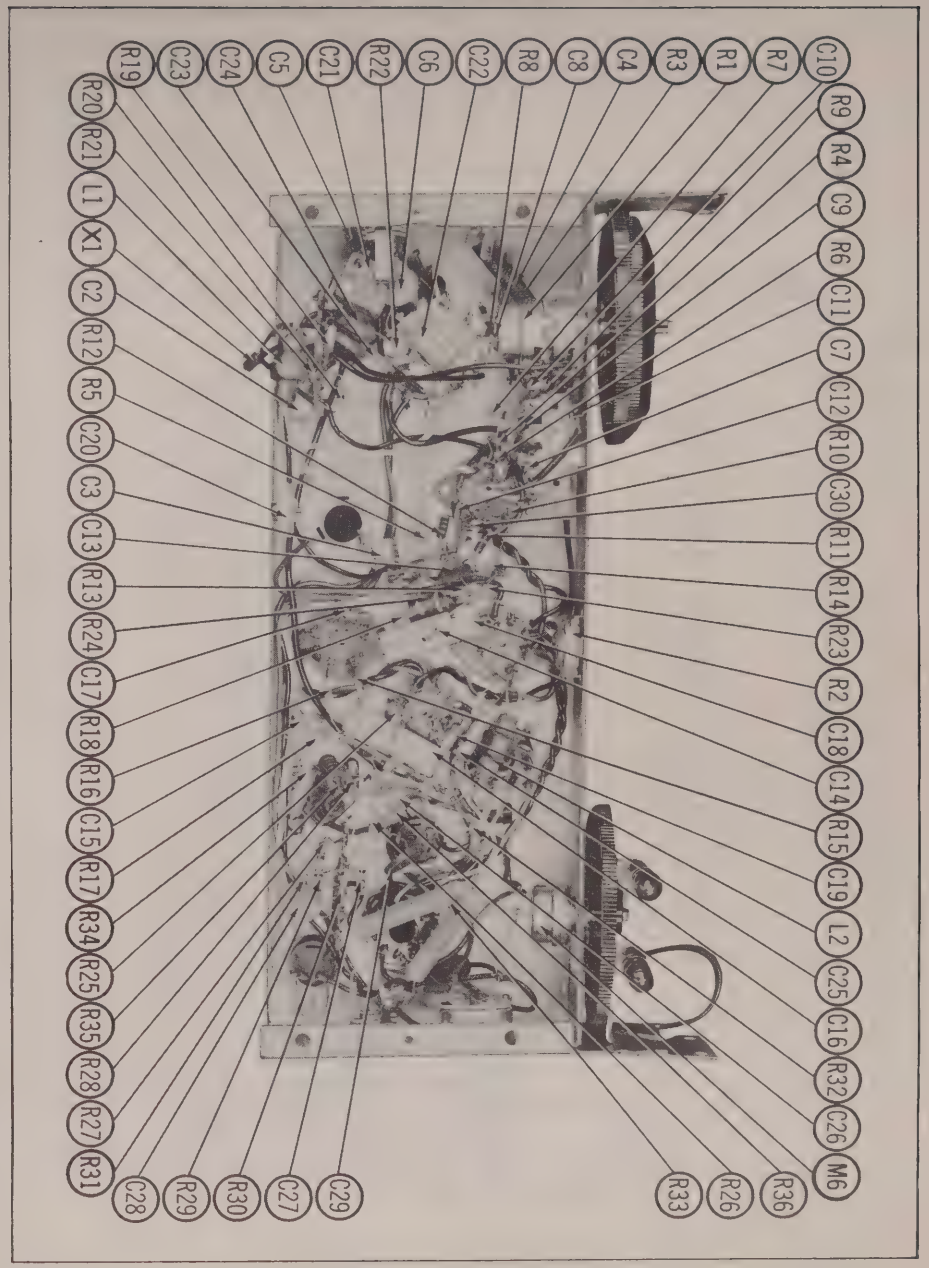
Note 1. Some versions may use two 10000mmf in parallel in this application.
Note 2. Some versions may use two 680mmf in series in this application.
Note 3. Some versions may use .047mfd in this application (Part# D-4.148-58)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Wilcox-Gay PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg		B-11.252	F1-52			■	Loudness
B	250K			R2-35				Tone
C	Switch			KB-1 or KR-1*				Monitor
R2A	500Ω		B-8.240	AB-4	A47-500-S	B11-103	PTA52L	Hum Balance
B	Shaft			AK-1	FKS-1/4	SK2	Not Req.	

* Use KR on CRL "Red Label" controls and KB on "Blue Label" controls.
■ "STA-LOC" Equivalent: FB16A, OF812, RU254A, IS1250, US41

CHASSIS—BOTTOM VIEW



WILCOX-GAY
MODEL 772

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Wilcox-Gay PART No.	NOTES
R3	390K		D-7.101-125	
R4	4.7meg		D-7.101-178	
R5	220K		D-7.101-114	
R6	100K		D-7.101-100	
R7	10K		D-7.101-58	
R8	1meg		D-7.101-141	
R9	100K		D-7.101-100	
R10	47K		D-7.101-86	
R11	1meg		D-7.101-141	
R12	2200Ω		D-7.101-30	
R13	220K		D-7.101-114	
R14	68K		D-7.101-93	
R15	2.2meg		D-7.101-155	
R16	4700Ω		D-7.101-44	
R17	220K		D-7.101-114	
R18	220K		D-7.101-114	
R19	330K		D-7.101-121	
R20	10K		D-7.101-58	
R21	22K			
R22	10K		D-7.101-58	
R23	470K		D-7.101-128	
R24	270Ω	2	D-7.103-62	
R25	470K		D-7.101-128	
R26	150K		D-7.101-107	
R27	10meg		D-7.101-191	
R28	10meg		D-7.101-191	
R29	1meg		D-7.101-141	
R30	1.5meg		D-7.101-148	
R31	10meg		D-7.101-191	
R32	100K		D-7.101-100	
R33	3.3Ω	7(WW)	D-6.215-13	Note 1
R34	4700Ω	1	D-7.102-51	
R35	470Ω	2	D-7.103-72	Note 2
R36	33Ω	1	D-7.102-227	

Note 1. Some versions may use 2 1.6Ω in series in this application.
Note2. Some versions may use 220Ω and 270Ω in series in this application

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.30A	540VCT @.100A	5V @2.1A	C-35.1040	P2908			PC8405		R-12A
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @3.5A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.1	REPLACEMENT DATA Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7900Ω CT	600Ω	C-9.277							
		SEC. 2								
		3-4Ω CT								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Wilcox-Gay PART No.	Meissner PART No.	Merit PART No	Miller PART No.	Ram PART No	NOTES
L1	Bias Osc.	B-1.557					
L2	Trap Coil	B-1.556					

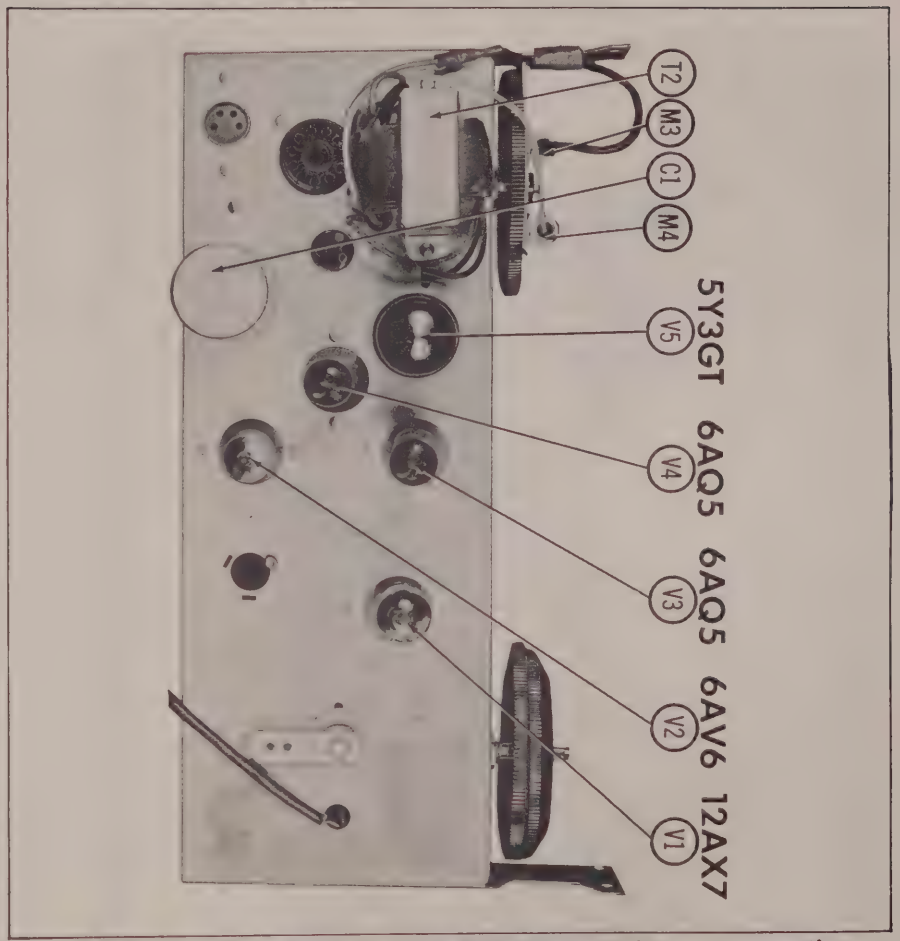
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Wilcox-Gay PART No.	QUAM PART No.	NOTES
SP1	5" x 7"	PM	3-4Ω	C-30.355-1	57A21	
SP2	4"	PM	6-8Ω	C-30.352-2	4A07Z7.5	

MISCELLANEOUS

ITEM No.	PART NAME	Wilcox-Gay PART No.	NOTES
M1	Erase Head	C-35.756-1	
M2	Record-Play Head	B-36.212	
M3	Neon Lamp	45-2036-1	#NE51, Distort
M4	Neon Lamp	45-2036-1	#NE51, Normal
M5	Switch	B-11.254A	Play, Record (Rotary Wafer Type)
M6	Switch	B-11.250	Power On-Off (Rotary Snap Type)
M7	Switch	B-11.253	Automatic Shut Off (Micro Type)
M8	Motor Ass'y	C-35.1053	
	Belt	B-28.181	Idler Drive

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

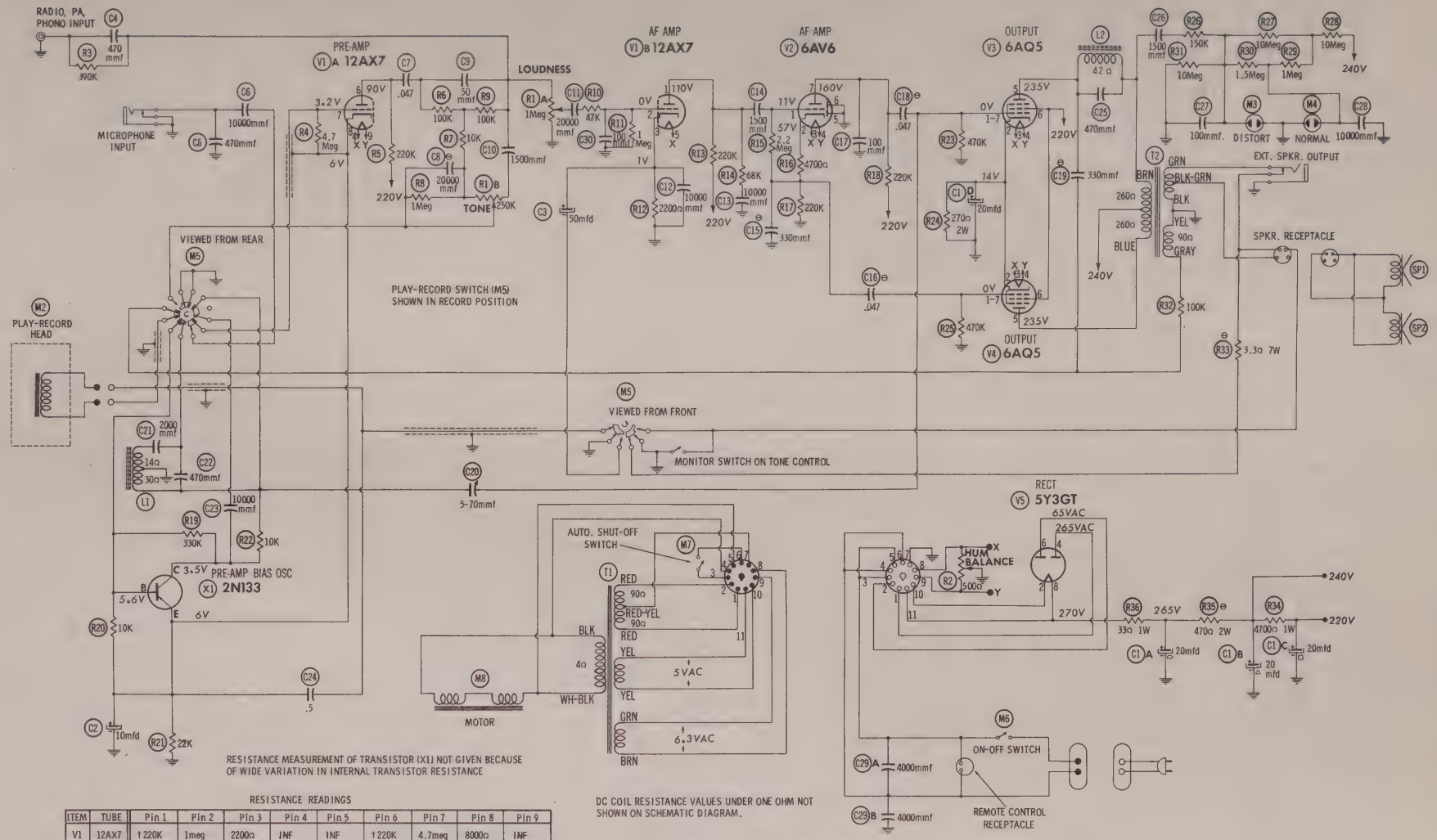
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	C-13.253-8	Speed Shift, Gray
Knob	B-32.302-2	Timer
Pushbutton	B-35.1043-2	Assembly

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 0401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	↑220K	1meg	2200Ω	INF	INF	↑220K	4.7meg	8000Ω	INF
V2	6AV6	2.2meg	220K	INF	INF	0Ω	0Ω	↑220K		
V3	6AQ5	470K	270Ω	INF	INF	↑800Ω	↑5400Ω	470K		
V4	6AQ5	470K	270Ω	INF	INF	↑800Ω	↑5400Ω	470K		
V5	5Y3GT	NC	300K	NC	90Ω	NC	90Ω	TP	300K	

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM PIN 8 OF V5
NC NO CONNECTION
TP TIE POINT

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

406-12

WILCOX-GAY MODEL 772

Ref. No.	Part No.	Description
1	C-13.253-8	Speed Shift Knob (Gray)
2	73-2254-3	Felt Washer, 3/4 O.D. x 1/4 I.D. x 1/16
3	57-4C-610-5	#6-32 x 5/8 Phillips O.H.M.S.
4	C-13.360	Speed Shift Escutcheon
5	57-4C-624-5	#6-32 x 1 1/2 Phillips O.H.M.S.
6	57-4C-405-5	#4-40 x 5/16 Phillips O.H.M.S.
7	B-32.302-2	Timer Knob
8	73-2334-1	#6 Cantlink Washer
9	D-13.363	Timer Escutcheon
10	B-35.1036	Timer Shaft & Pointer Ass'y.
11	57-1C-618-1	#6-32 x 1 1/8 Phillips B.H.M.S.
12	C-19.975-2	Rear Escutcheon Plate
13	57-4C-610-5	#6-32 x 5/8 Phillips O.H.M.S.
14	E-13.364	Front Escutcheon
15	C-13.318-0	Nylon Reel Pan & Shaft Ass'y.
16	B-28.163	Linen Washer
17	C-13.318-0	Nylon Reel Pan & Shaft Ass'y.
18	B-28.163	Linen Washer
19	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
20	73-2231-4	#6 Int. Lockwasher
21	48-2219-1	#6-32 x 5/16 Keps Hex. Nut
22	B-19.858	Push Button Retaining Bracket
23	B-33.446	Spacer, 7/8" long
24	57-3439	#6-32 x 3/16 Bristol Hd. Set Screw
25	B-32.300	Tape Guide Post (Left)
26	48-410-1	#6-32 Hex. Nut
27	B-32.260	Tape Guide Post Spacer
28	C-35.756-1	Erase Head Ass'y.
29	B-19.872-1	Erase Head Mtg. Plate
30	C-35.1067	Pinch Roller & Play-Record Hd. Ass'y.
31	57-3439	#6-32 x 3/16 Bristol Hd. Set Screw
32	B-32282	Tape Guide Post (Right)
33	57-3102-1	#4-36 x 1/4 R.H.M.S. (Azimuth Adj.)
34	73-2231-3	#4 Int. Lockwasher
35	B-36.212	Play-Record Head
36		Play-Record Head Bracket Ass'y.
37		Int. Tooth Lockwasher
38		#2-56 x 3/16 Hex. Nut
39	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
40	73-2231-4	#6 Int. Lockwasher
41		"E" Ring, 3/16" Shaft
42	B-28.163	Linen Washer
43		Pinch Roller
44	B-31.351	Reel Drive Spring (Belt)
45	B-28.163	Linen Washer
46	B-31.361	Erase Head Tension Spring
47	B-31.334	Felt Pad (2 used)
48	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
49	B-35.1047-1	Pressure Pad Spring Ass'y.
50	57-16C-606-1	#6-32 x 3/8 R.H.M.S.
51		Pinch Roller Tension Spring
52		Playback Actuating Lever
52A	B-35.1045	Playback Slide Plate Ass'y.
53	B-35.1025	Record Actuating Lever Ass'y.
53A	B-19.868	Record Slide Plate
54	B-33.412	Push-On Stud Nut, 3/16" Stud
55	73-2241-148F	Flat Washer, 1/2 O.D.X. 205 I.D. x 1/32
56	57-4C-816-5	#8-32 x 1 Phillips O.H.M.S.
57	35.1068-2	Baseplate Assembly

Ref. No	Part No.	Description
58	B-32.373-1	Tape Guide Post
59	B-32.373-2	Post, Automatic Shut-Off
60	B-19.876-1	Push Button Lever
61	B-19.859	Hinge Bracket for Push Buttons
62	B-31.343	Lock Plate Spring
63	57-3576-1	#8-32 x 1/4 Sems. P.H.M.S.
64	B-32.291	Shouldered Washer
65	B-35.1023	Record Lock Assembly
66	B-31.427	Record Lock Return Spring
67	B-19.1364-1	Record Lock Mtg. Plate
68	B-35.1043-2	Push Button Ass'y.
69	73-2231-5	#8 Int. Lockwasher
70	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
71	B-31.338	Brake Return Spring
72	B-33.412	Push-On Stud Nut, 3/16 Stud
73	73-2241-148F	Flat Washer, 1/2 O.D. x .205 I.D. x 1/32
74	C-35.835	Brake Slide Plate Ass'y.
75	B-35.1046-1	Shift Plate Ass'y.
76	B-31.339	Idler Lever Tension Spring
77	B-35.1070	Brake Spring Ass'y.
78		Brake Pad, Felt
79	73-2231-4	#6 Int. Lockwasher
80		#6-32 x 1/4 Hex. Nut
81	B-19.1374	Stop Switch Mtg. Bracket
82	B-19.1367	Actuating Lever
83	48-2219-1	#6-32 x 5/16 Keps. Hex. Nut
84	B-32.291-1	Shouldered Washer
85	73-2231-5	#8 Int. Lockwasher
86	57-11C-804-1	#8-32 x 1/4 B.H.M.S.
87	73-2231-5	#8 Int. Lockwasher
88		Wire Clamp
89	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
90	B-28.163	Linen Washer
91	73-2248-39	Flat Washer, .425 O.D. x .255 I.D. x .070 Phenol
92		Switch Lever Bracket
93	73-2231-4	#6 Int. Lockwasher
94		#6-32 x 1/4 Phillips B.H.M.S, Brz.
95	B-33.118	Spacer
96	57-3439	#6-32 x 3/16 Bristol Hd. Set Screw
97	B-35.1033	Switch Lever Ass'y.
98		Switch Arm Link
99	B-35.1051-1	Idler Lever Ass'y.
100	B-31.382	Spring Washer
101	B-32.275-1	#8-32 Hex. Hd. Shouldered Screw
102		Lever Assembly
103	B-31.382	Spring Washer
104	B-32.275-1	#8-32 Hex. Hd. Shouldered Screw
105	73-2231-4	#6 Int. Lockwasher
106	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
107	D-33.445	Gear Train for Tape Index
108	73-2231-4	#6 Int. Lockwasher
109	57-1C-614-1	#6-32 x 7/8 Phillips B.H.M.S.
110	B-35.1044	Sub-Idler Plate Ass'y.
111	B-32.275-1	#8-32 Hex. Hd. Shouldered Screw
112	B-28.163	Linen Washer
113	B-33.405	Sub Idler Wheel
114	73-2254-6	Felt Washer
115		"E" Ring, 3/16" Shaft
116	C-13.257-1	Flywheel
117	57-3589-1	#8-32 x 1/4 Bristol Hd. Set Screw
118	B-35.1050-1	Brake Drum & Bushing Ass'y.

Ref. No.	Part No.	Description
119	B-35.1050-1	Brake Drum & Bushing Ass'y.
120	B-28.163	Linen Washer
121	B-35.1066	Sheave Pulley Ass'y.
122	B-28.181	Idler Drive Belt
123		"E" Ring, 3/16" Shaft
124	B-32.288	Motor Pulley
125	57-3589-1	#8-32 x 1/4 Bristol Hd. Set Screw
126	B-35.1021-1	Speed Control Shaft Ass'y.
127	B-33.407-1	"C" Washer
128	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
129	73-2231-4	#6 Int. Lockwasher
130	B-19.961	Detent Spring
131	B-33.409	Hair Pin Clip
132	73-2241-150	Flat Washer, Blued Steel
133	B-33.408	Idler Wheel, 2 1/2" Dia.
134	B-28.163	Linen Washer
135	B-35.1064	Idler Slide Plate Ass'y.
136		Idler Slide Bushing
137	B-33.407-1	"C" Washer
138	B-19.878	Speed Shift Lever
139		Flat Washer, Steel
140	B-31.327	Idler Lift Compression Spring
141	57-6C-806-1	#8-32 x 3/8 Phillips R.H.M.S.
142	73-2231-5	#8 Int. Lockwasher
143	73-2241-143	Flat Washer, Steel

Ref. No.	Part No.	Description
144	110-47	Idler Throw-Out Lever
145	B-32.291-1	Shouldered Washer
146	B-31.324	Idler Tension Spring
147	B-19.862	Angle Brkt. for Mtg. Drive Ass'y.
148	73-2231-5	#8 Int. Lockwasher
149	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
150	B-19.863	Drive Mtg. Plate Bracket
151	73-2231-5	#8 Int. Lockwasher
152	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
153	B-31.324	Idler Tension Spring
154	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
155	B-35.1054-2	Drive Mtg. Plate Assembly
156		Motor Adaptor Plate
157		Shock Mount
158	B-33.411	Flat Washer, 3/4 O.D. x 3/16 I.D. x .050
159	48-2221	#10-32 Hex. Nut (Elastic Stop Nut)
160	C-35.1053	Motor Assembly
161		Motor Fan
162	73-2254-3	Felt Washer, 3/4 O.D. x 1/4 I.D. x 1/16
163	73-2241-143	Flat Washer, 5/8 O.D. x .260 I.D. x 1/32
164	33.415	Speed Nut
165	B-28.181	Idler Drive Belt

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

ZENITH MODEL
Royal 700L (Ch. 7AT43, 7AT43Z3)

ZENITH MODEL
Royal 700L (Ch. 7AT43, 7AT43Z3)

ZENITH MODEL
Royal 700L (Ch. 7AT43, 7AT43Z3)

TRADE NAME	Zenith Model Royal 700L (Ch. 7AT43, 7AT43Z3)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	Battery Operated Portable AM Transistorized Receiver
POWER SUPPLY	9 Volts DC
TUNING RANGE—BROADCAST	540-1600KC
RATING	8.1MA @ 9 Volts DC (No Signal, Min. Vol.) 9MA @ 9 Volts DC (Signal, Normal Vol.)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	"	"	A4	"
3.		"	535KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 and 3.
4.		"	1260KC	Tune for 1260KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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H615

SET 406 FOLDER 13

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N194	Mixer				2N194	NPN
X2	2N193	Oscillator				2N193	NPN
X3	121-70	1st. IF Amplifier				2N516	NPN
X4	121-71	2nd. IF Amplifier				2N515	NPN
X5	2N213	Driver				2N213	NPN
X6	121-61	Output				2N407	PNP
X7	121-61	Output				2N407	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	100	10	22-3023	PWE10100	NL100-10	TT15X100	ML100-15		R2418 *
C2	100	10	22-3023	PWE10100	NL100-10	TT15X100	ML100-15		R2418 *
C3	16	3	22-2871	PWE3015	NL15-6	TT6X15			TE-1053, 5
C4	3	12	22-2884	XPP-12003		TT12X2	ML4-15		TE-1122
C5	50	12	22-2883	XPP-12050	NL50-10	TT15X50	ML50-15		TE1160

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	50000		22-2728	BPD-05	DF-503			5HK-S5	
C7	20000		22-2885	BPD-02	DD-203	BYB6S2		5HK-S2	
C8	50000		22-2728	BPD-05	DF-503			5HK-S5	
C9	1000		22-2729	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C10	50000		22-2728	BPD-05	DF-503			5HK-S5	
C11	50000		22-2728	BPD-05	DF-503			5HK-S5	
C12	20000		22-2885	BPD-02	DD-203	BYB6S2		5HK-S2	
C13	11		22-2617						
C14	50000		22-2728	BPD-05	DF-503			5HK-S5	
C15	20000		22-2885	BPD-02	DD-203	BYB6S2		5HK-S2	
C16	20000		22-2885	BPD-02	DD-203	BYB6S2		5HK-S2	
C17	11		22-2617						
C18	50000		22-2728	BPD-05	DF-503			5HK-S5	
C19	20000		22-2885	BPD-02	DD-203	BYB6S2		5HK-S2	
C20	1000		22-17	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C21	1000		22-17	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	63-4035					Volume & Switch

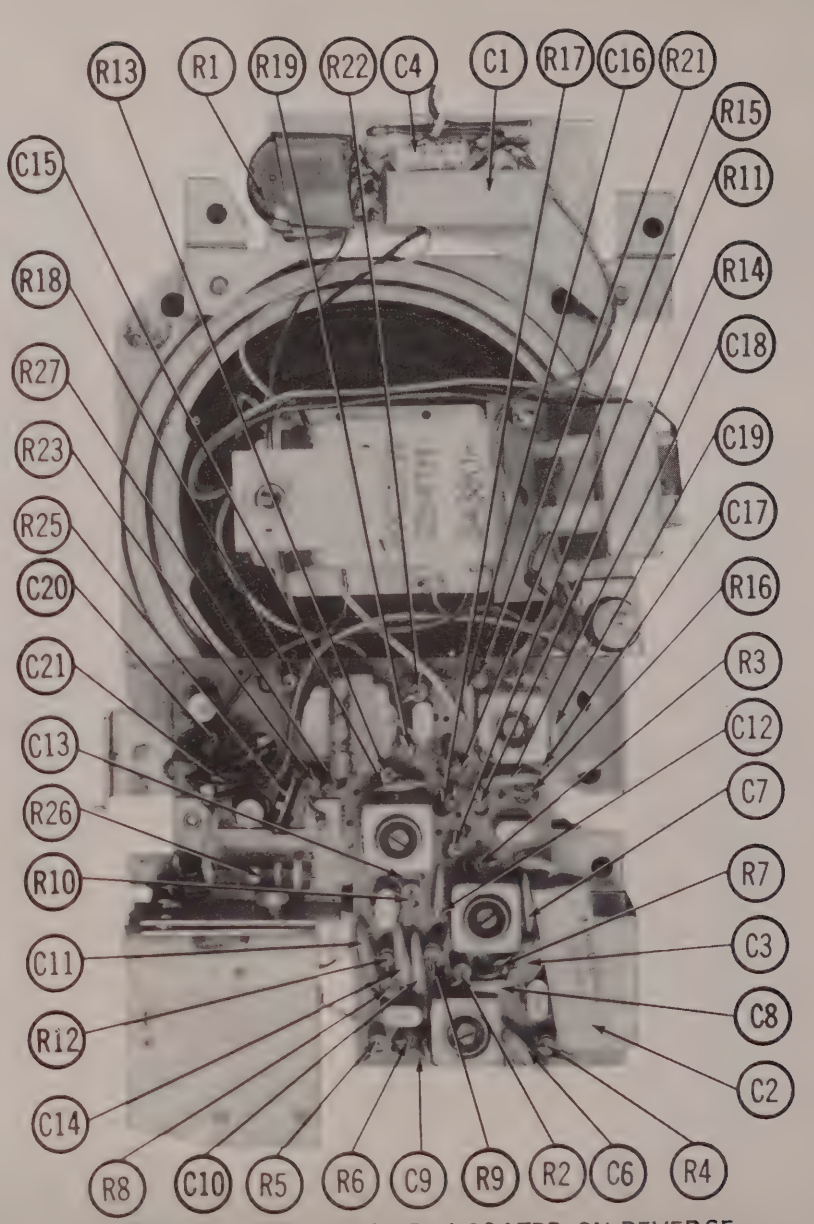
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R2	1000Ω		63-1786	
R3	150K			
R4	3900Ω		63-1810	
R5	4700Ω		63-1813	
R6	10K		63-1827	
R7	2200Ω		63-1800	
R8	1000Ω		63-1786	
R9	4700Ω		63-1813	
R10	3900Ω		63-1810	
R11	82K		63-1866	
R12	470Ω		63-1772	
R13	4700Ω		63-1813	
R14	3900Ω		63-1810	

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R15	1000Ω		63-1786	
R16	470Ω		63-1772	
R17	8200Ω		63-1824	
R18	6800Ω		63-1820	
R19	82K		63-1866	
R20	22Ω		63-1715	
R21	680Ω		63-1778	
R22	3300Ω		63-1806	
R23	5600Ω		63-1817	
R24	820Ω		63-1782	
R25			63-3663	Temperature comp
R26	4.7Ω	1	63-3665	
R27	100Ω		63-1744	

CHASSIS—TOP VIEW



ITEMS C5, R20 & R24 ARE LOCATED ON REVERSE SIDE OF PRINTED BOARD

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2 :	1	95-1587	GH118			TR-7		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	450Ω CT	3-4Ω	95-1588							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-839	4A07①	① Fabricate mounting for output transformer and phone jack

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loop Stick	S-42781					
L2	Osc. Coil	95-1513					
L3	1st. IF	95-1510					
L4	2nd. IF	95-1511					
L5	3rd. IF	95-1512					

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	Z-7		1		935		M-14		1LP	6 used

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N87G	103-19	1N60	1N295	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Tuning Cap.	22-3013	2 Gang (Ant. 15-170mmf, Osc. 11-104mmf)
M4	Jack	44-34	Headphone
	Printed Board	N-204-7	

CABINETS & CABINET PARTS

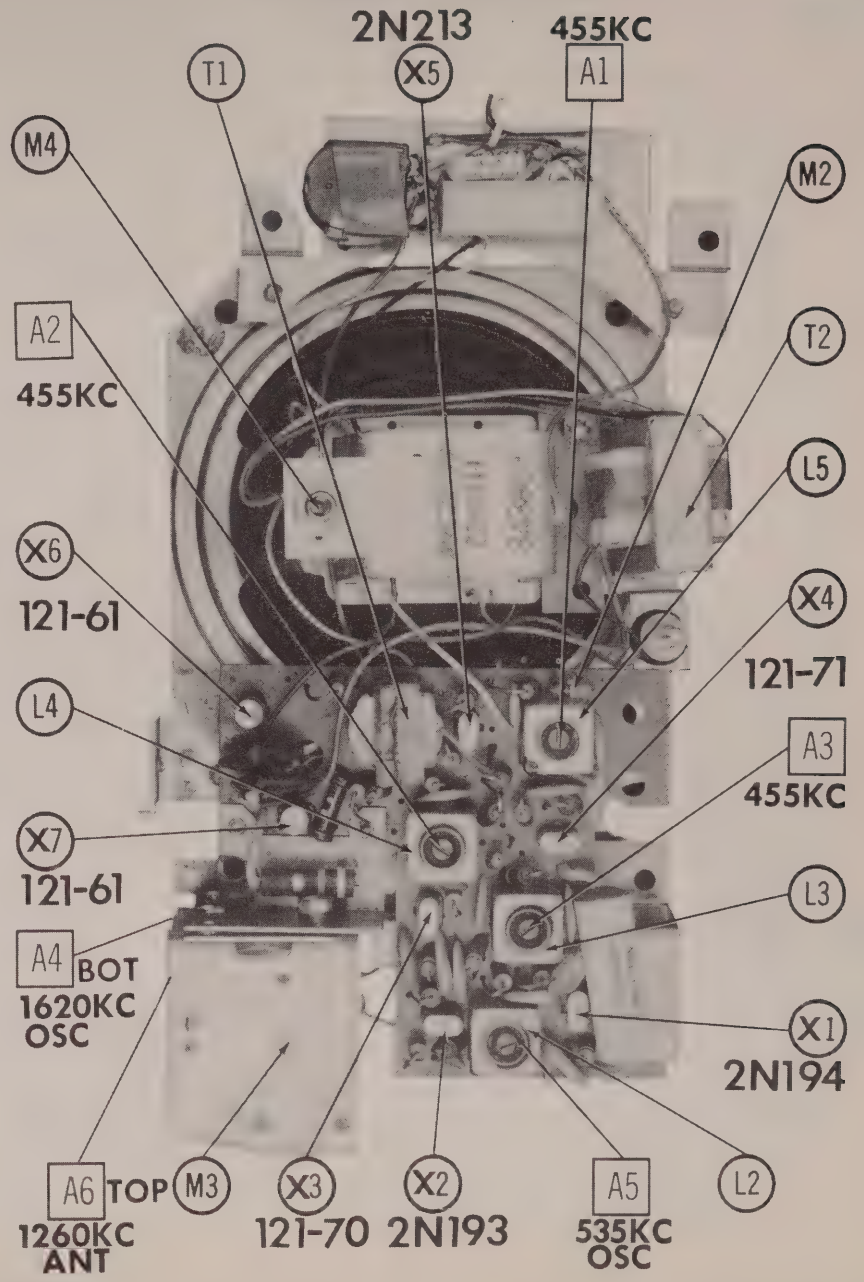
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-1671	Tuning
Knob	46-1673	Volume
Knob	S-42733	Dial, Includes Ring Ass'y.
Cabinet	14-2327	
Housing Ass'y.	S-42785	Battery
Cover	S-42991	Battery, Includes Spring Ass'y.

WIRING DATA

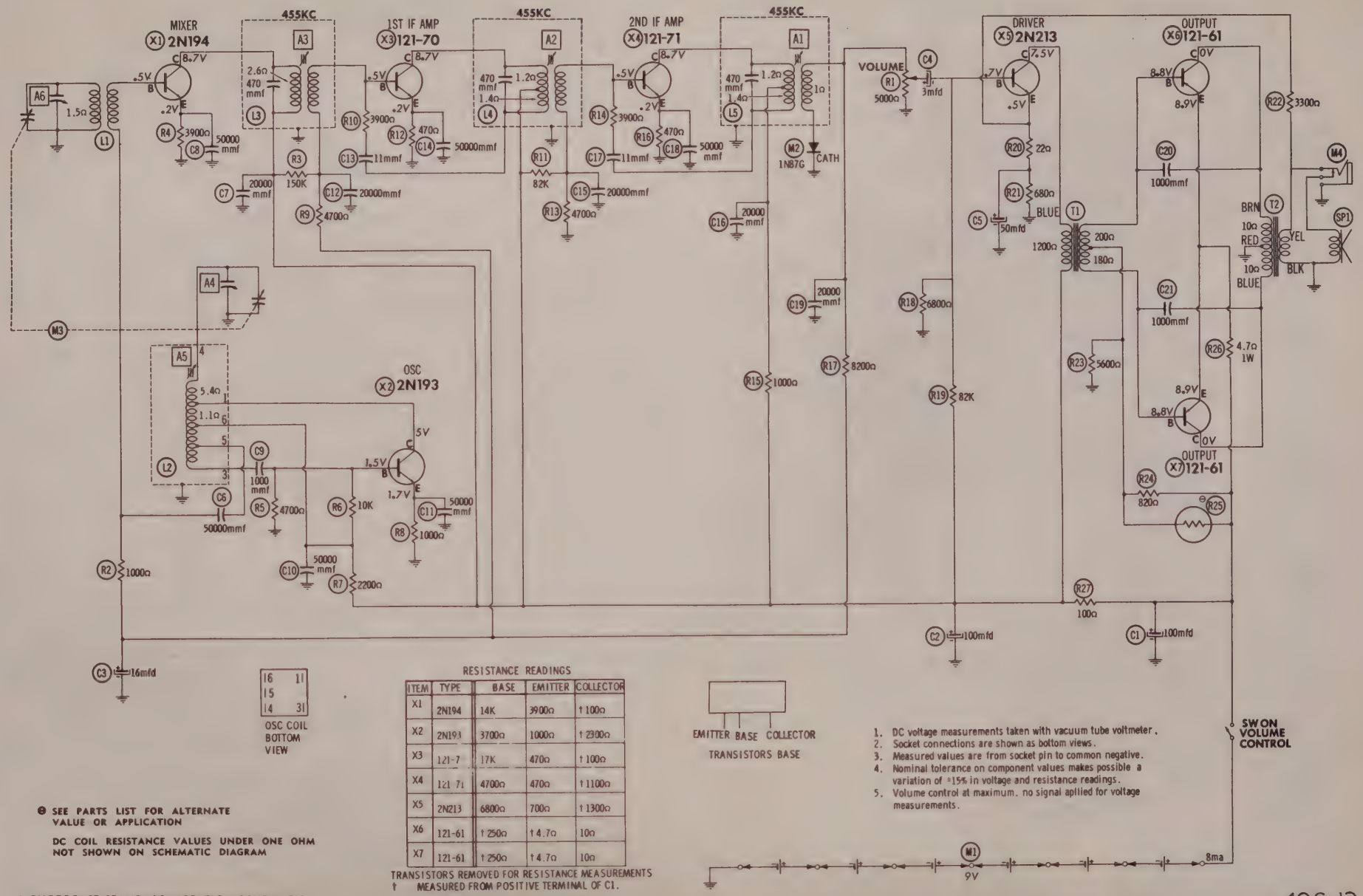
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



FOLDER 13

ZENITH MODEL ROYAL 700L (CH. 7AT43)



OSC COIL BOTTOM VIEW

EMITTER BASE COLLECTOR
TRANSISTORS BASE

RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N194	14K	3900Ω	†100Ω
X2	2N193	3700Ω	1000Ω	†2300Ω
X3	121-7	17K	470Ω	†100Ω
X4	121-71	4700Ω	470Ω	†1100Ω
X5	2N213	6800Ω	700Ω	†1300Ω
X6	121-61	†250Ω	†4.7Ω	10Ω
X7	121-61	†250Ω	†4.7Ω	10Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS
† MEASURED FROM POSITIVE TERMINAL OF C1.

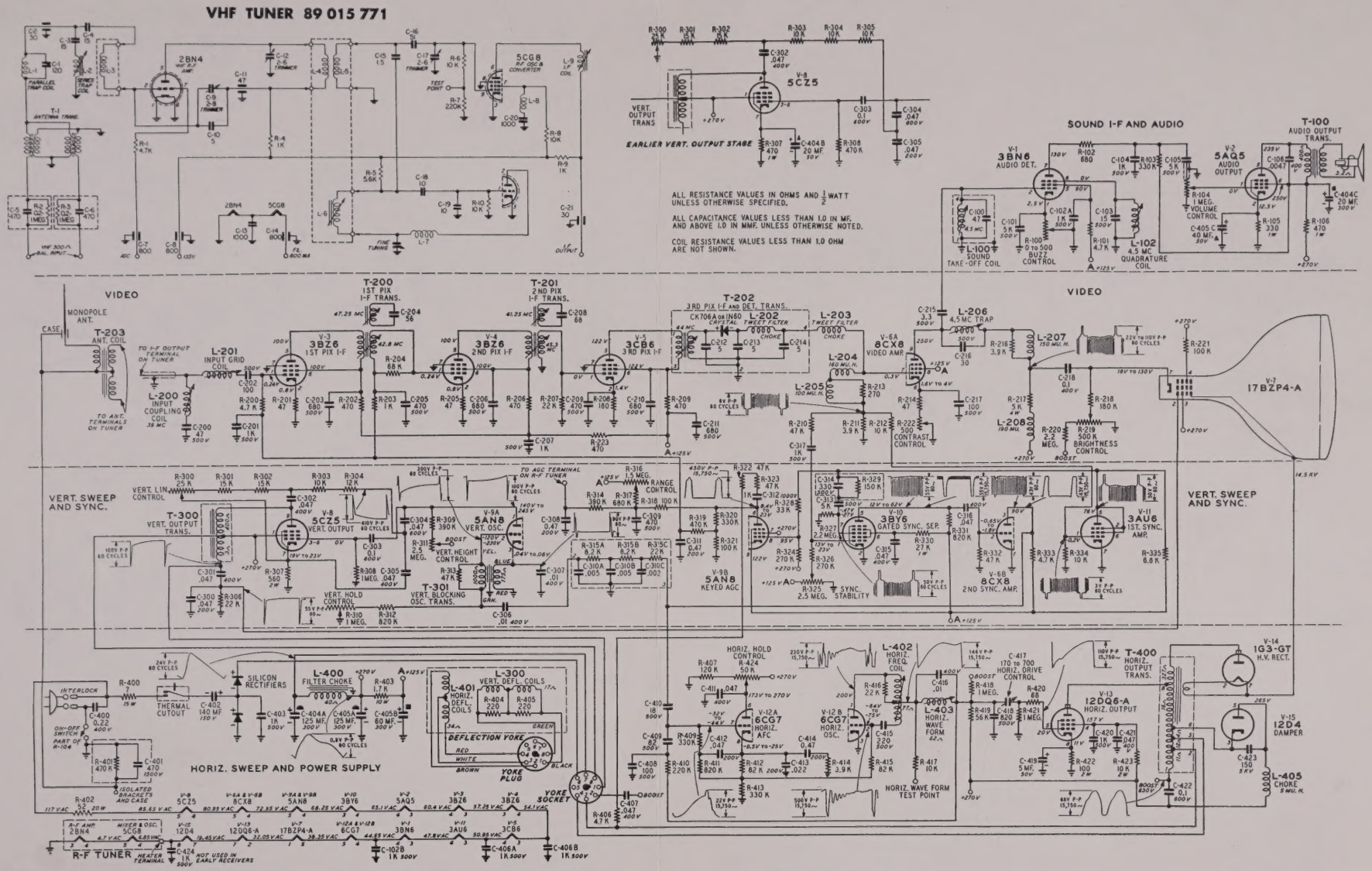
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

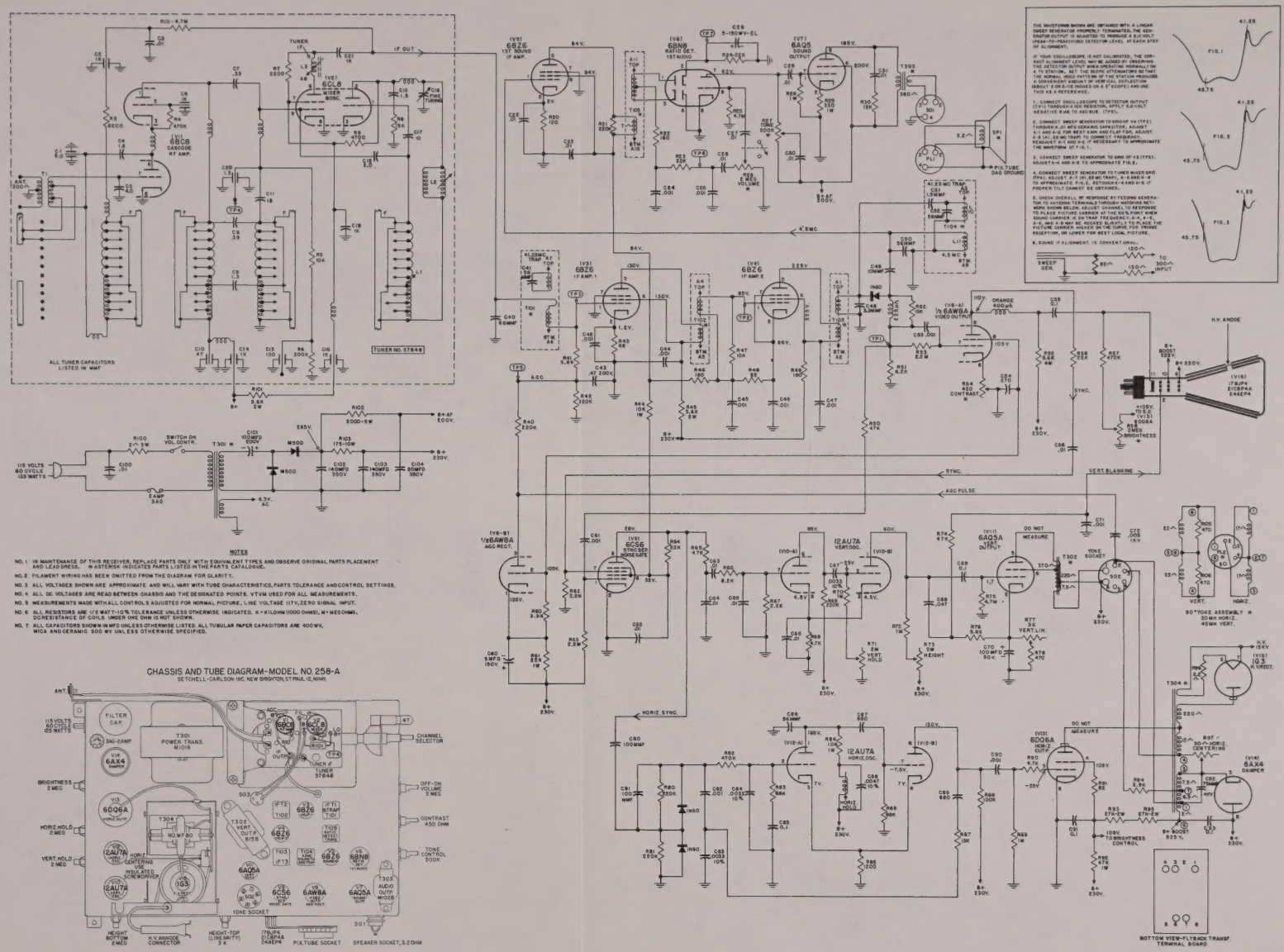
406-13


VHF TUNER 89 015 771
SOUND I-F AND AUDIO
VIDEO
VERT. SWEEP AND SYNC.
HORIZ. SWEEP AND POWER SUPPLY
R-F TUNER
EARLIER VERT. OUTPUT STAGE
ALL RESISTANCE VALUES IN OHMS AND 1/2 WATT UNLESS OTHERWISE SPECIFIED.
ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED.
COIL RESISTANCE VALUES LESS THAN 1.0 OHM ARE NOT SHOWN.
DEFLECTION YOKE
YOKE PLUG
YOKE SOCKET

Dumont Models RA-406, RA-407 (Sportsman 17)

Schematic Diagram Courtesy of Allen B. DuMont Laboratories, Inc.

Setchell - Carlson
Model 58C21
(Chassis 258-A)


CHASSIS AND TUBE DIAGRAM-MODEL NO. 258-A
SETCHELL-CARLSON INC. NEW BRIGHTON, ST.PAUL 12, MINN.
NOTES
NO. 1 IN MAINTENANCE OF THIS RECEIVER, REPLACE PARTS ONLY WITH EQUIVALENT TYPES AND OBSERVE ORIGINAL PARTS PLACEMENT AND LEADDRESS. * ASTERISK INDICATES PARTS LISTED IN THE PARTS CATALOGUE.
NO. 2 FILAMENT WIRING HAS BEEN OMITTED FROM THE DIAGRAM FOR CLARITY.
NO. 3 ALL VOLTAGES SHOWN ARE APPROXIMATE AND WILL VARY WITH TUBE CHARACTERISTICS, PARTS TOLERANCE AND CONTROL SETTINGS.
NO. 4 ALL DC VOLTAGES ARE READ BETWEEN CHASSIS AND THE DESIGNATED POINTS. VTVM USED FOR ALL MEASUREMENTS.
NO. 5 MEASUREMENTS MADE WITH ALL CONTROLS ADJUSTED FOR NORMAL PICTURE, LINE VOLTAGE 117V, ZERO SIGNAL INPUT.
NO. 6 ALL RESISTORS ARE 1/2 WATT +-10% TOLERANCE UNLESS OTHERWISE INDICATED. K = KILOHM (1000 OHMS), M = MEGOHMS, DC RESISTANCE OF COILS UNDER ONE OHM IS NOT SHOWN.
NO. 7 ALL CAPACITORS SHOWN IN MFD UNLESS OTHERWISE LISTED. ALL TUBULAR PAPER CAPACITORS ARE 400 WV, MICA AND CERAMIC 500 WV UNLESS OTHERWISE SPECIFIED.
ALL TUNER CAPACITORS LISTED IN MMF
TUNER NO. 37848
115 VOLTS 60 CYCLE 125 WATTS
T301 POWER TRANS. M-1018
FILTER CAP
SWITCH ON VOL. CONTR.
CHANNEL SELECTOR
OFF-ON VOLUME 2 MEG
CONTRAST 450 OHM
TONE CONTROL 500K
BRIGHTNESS 2 MEG
HORIZ. HOLD 2 MEG
VERT. HOLD 2 MEG
HORIZ. CENTERING USE INSULATED SCREWDRIVER
HEIGHT BOTTOM 2 MEG
H.V. ANODE CONNECTOR
HEIGHT-TOP (LINEARITY) 2 K
PIX TUBE SOCKET
SPEAKER SOCKET, 3.2 OHM
YOKE SOCKET
SWEEP GEN.
TO 300 OHM INPUT
BOTTOM VIEW-FLYBACK TRANSF. TERMINAL BOARD
Schematic Diagram Courtesy of Setchell - Carlson, Inc.